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ABSTRACT

Papers on library buildings and equipment, which were presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) "The Impact of Technology on Library Buildings," in which Rolf Fuhlrott (West Germany) discusses construction technology (types of building materials and library building design), selection of technical building equipment (illumination systems, air conditioning systems, and patron transportation facilities), and library technology (book conveying systems and storage facilities); (2) "German Library Building in the Last Decade: Selected Examples of Academic/Research Libraries and Public Libraries in the Federal Republic of Germany and Berlin (West)," which presents holdings data, facility specifications, and other information on 19 academic and 11 public libraries in West Germany; (3) "The Influence of Conventional Technologies on Library Planning and Construction," in which Robert K. Jopp (West Germany) discusses library heating, lighting, and air conditioning in the context of energy conservation; and (4) "Whither the Book? Considerations for Library Planning in the Age of Electronics," in which Roscoe Rouse, Jr. (United States) discusses paper longevity, book preservation, the impact of the online environment on libraries, electronic publishing, and factors to be considered in planning future library buildings. (ESR)

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Library Buildings and Equipment Section. Management and Technology Division.
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The Impact of Technology on Library Buildings

von / by

Rolf FUHLROTT

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THE IMPACT OF TECHNOLOGY ON LIBRARY BUILDINGS

by Rolf Fuhlrott

Abstract

In this report I would like to give an account on the impact of conventional technology, that is non-computerised technology, on library buildings. Thus we may distinguish between three kinds of technology, which influence both appearance and function of library buildings:

1. Construction technology
2. technical building equipment
3. library technology

1. As to construction technology, new building materials and construction methods, as well as advanced static calculations, have made it possible to construct bold buildings, i.e. high-rise constructions, cantilevering designs, large-scale, support-free rooms. In the building interior these structural systems allow a new space-layout (spacious foyers, atrii, office landscapes, elevated stack rooms etc.)

2. To guarantee the function of room-continuity, a well-planned technical building equipment is essential. Wide staircases and increasingly even moving stairs serve for the passenger traffic. Special attention, of course, has to be given to handicapped persons. Inside, spacious rooms make necessary artificial illumination, which often is not integrated in the architectonic layout. Large window areas require sunshading not only with a view to human comfort and book preservation, but also for interior air conditioning. Technical equipment is partly included in the interior layout. Due to latest findings in paper research and conservation, libraries have to meet a

lot of further requirements.

3. The Library technology supports the storage and availability of the library stock. Above all, storage libraries without an automatized book charging system require special transport equipments for call slips and conveyor-belts for the transport of books from the stacks. To guarantee space-saving storage, mobile shelves and automatized storing systems have been developed. Complicated arrangements of rooms require a call system as well as facilities for the preservation of books. During the past decades many libraries have developed into complex and subtle technical systems. Recently a countermovement, going hand in hand with a certain hostility against technology, tries to do with less technology, not least considering to curb the waste of energy.

THE IMPACT OF TECHNOLOGY ON LIBRARY BUILDINGS

by Rolf FUHLROTT

Formerly the question of the impact of technology on library buildings was answered with the existence of technical facilities in library buildings. As for me, I would prefer to look into this problem from another point of view, saying that technology itself has made certain forms and structures possible. Yet I am quite aware of the fact that the appearance of a library is not exclusively determined by technology, but by the library concept, too, by the philosophy at the bottom of it. Nevertheless I would like to examine the impact of technology in three fields, that is

1. construction technology
2. technical library equipment
3. library technology

I would like to illustrate the above-mentioned by some slides and at the same time present to you several newly built libraries, some of them in the Federal Republic of Germany.

1. construction technology

As we all know, library buildings are depots for book stocks, which have to take into account that these stocks are steadily increasing. A building thus orientated to increase is inevitably too big at the beginning of its utilization, i.e. when moving into the building, after a couple of years, however,

often much too quick, it gets too small. Out of this tension between too big and too small, librarians have begun to call for an optimal usage of the buildings, guaranteeing all future requirements. Certainly the meeting of these requirements is only one aspect, though the most important one, for the construction of a library building. Further requirements are form and design, adaptability to natural surroundings, or to the town picture, workplace layout for the library staff and building regulations, which all determine the appearance of the building. The architect has to unite these aspects to a first-class whole, at the same time finding a definitive form. Consequently there is a great variety of designs for a great variety of libraries, according to the constructional feasibilities of the various eras. With the introduction of iron into the building trade of the past century and the invention of concrete, constructional developments have made manifold forms and girder constructions possible. Conventional structural principles were improved by strength tests and scientific calculation methods. Structural stress analysis as well as new jointing methods offer a great variety of construction techniques, iron and later concrete allow extreme stress due to their strength capability.

Consequently new load bearing systems were developed which determined, too, the appearance of buildings, halls and rooms, often leaving the construction visible. Though an 18 th century baroque library allowed a great variety of artistic creativeness, technolgoy had not much influence on its appearance. As late as in the 19 th century, the Bibliotheque St. Genevieve in Paris gave a first idea of the possibilities of iron architecture, that is, the construction of a lofty and spacious room, as it was later realized by means of the very same iron in the Bibliotheque Nationale in Paris. For

a long time the exterior architecture of libraries remanied the same, while all around the new building material, concrete, had already become a sign of the time. Concrete has opened new dimensions to the building trade and has multiplied creative expressiveness. Originally liquid, concrete gets its final shape when hardening in a mould, thus creating nearly unlimited possibilities to invent again and again new constructional forms. Concrete meant an immense fascination, creating at the same time, however, also ugliness.

Though no material is in itself ugly, missuse might even spoil the most valuable one. So it has been possible to construct tall buildings, even skyscrapers, closely side by side without adapting to natural surroundings or, for instance, without taking the small individual buildings of a library into consideration. Certainly the contrary is possible, too: to construct a library which dominates the town picture, rising above the comparitively small buildings of a university campus. "Highest" example is the 28 storeyed library building of the University of Massachusetts in Amherst. Though library towers are popular with architects, they are not with librarians. A disadvantage of a tower building is its small base, because a relatively large part is consumed by supply facilities etc., departments belonging together have to be distributed among several floors, lacking transport facilities cause long waiting times etc. In contrast to these tower buildings, there are also large - scale constructions limited to few storeys. Desirable are floor areas with hindrances as few as possible, e.g. built-in units or girder elements, which function as supports or walls. Area-covering structural elements are able to bridge large rooms, for instance cupole or shell constructions or suspended roofs. The libraries of London

and Washington are well-known for their huge domed structures, which have determined their form and design. Even the appearance of modern libraries is to a large extent determined by the structure of their supporting elements. As a rule, these supporting structures are roof bearing structures with normally single-storeyed rooms, at best with a gallery or atrii. The folded plate roof of the National Library of Medicine in Washington, for example, makes a roof-light system possible, which lights up the upper floor office rooms as well as the ground floor catalogue rooms. Suspended rooms, for instance, come up to a remarkable span and supply just as large reading rooms with light from both sides. Huge prestressed concrete girders, which bear a saw-tooth roof (north-light roof), their lower ending being formed by a perforated ceiling, have created the splendour of the reading room landscape of the State Library Preußischer Kulturbesitz in Berlin. Daylight is penetrating through the north-lights and light cupole into the room, in the evening they diffuse artificial light.

During the first half of the 19 th century, storage towers and blocks were typical of especially German libraries. At the end of the 19 th century, large quantities of the book stock were kept, due to economic reasons, in separate stack rooms. Early in the 20 th century, the space-saving arrangement of books according to accession-number (e.g. numerus currens) was, though after some hesitation, introduced. Because of this method of arranging books, stack rooms were developed, which have become typically of library buildings. When the idea of open-access libraries spread over from the United States and Great Britain to Germany, appearance and structural system of German libraries changed, too. Years which were marked by an economic

upswing and a building boom followed. An increased demand for scientific education favoured the building of new universities. Prefabricated structural designs were developed and produced at low costs, which allowed swift construction of cubical buildings by uniform planning grids. Public demand left no room for some architects' calls for a great variety of designs, which resulted in uniformity and monotony, frequently empnazised when combining unpleasant, cold materials and designs. The outside appearance soon became true of the interior, too: large open-access areas became part of the planning grid of 7,20 square metres. Recalling aesthetical values and artistic creativeness, at least library buildings of architectural quality have been built.

Recently concerns have turned up, with regard to new building materials and construction methods. The results of researches on reinforced concrete, wooden particle boards and some plastics, which are supposed to cause injuries to health, are still disputed, though there are no doubts that the employment of artificial and synthetic materials do not remain without side-effects on man's physical and psychical comfort. In some parts of the Federal Republic of Germany the frequently employed and low-priced asbestos cement must not be used for the construction of public buildings any longer. With regard to other frequently used building materials, an increased radioactive radiation has been noticed. Though tight and sealed windows reduce a waste of energy, they impede natural ventilation. So everywhere a tendency towards conventional building materials, original construction methods and less technology in managing a building can be noticed. It cannot be denied that a highly developed, expensive and energy-wasting building equipment is necessary for entirely different structural designs as,

for instance, high-rise buildings or large-scale low buildings.

2. building equipment

exerts in influence on particularly three fields: the use of a building requires

1. sufficient illumination
2. adequate air conditioning, which is guaranteed by a conditioning system
3. suitable transportation facilities to facilitate accessibility

2.1. illumination

With regard to illumination, the best should be made of natural light, if only because natural illumination does not involve any expenses. There are no problems as far as high-rise buildings are concerned, considering their small base and the limited depth of the rooms.(Because with regard to illumination, there is an interdependency between the depth of a room and the height of windows).The facade of the University library Karlsruhe, for instance, makes this quite clear. The windows of the administration rooms, which have a depth of about 16 feet, have a heigh of about 6,5 feet, the public rooms below have larger window areas, while the stack rooms above, with their function of preserving books, do not have more than small strip-line light fittings.
In buildings like these, with a division of functions (reading - administration - storing), it is quite easy to differentiate as to lighting.

Our modern libraries, however, do raise some difficulties

because of their various functions: a compromise between daylight illimination for the readers on the one hand and the protection of books from daylight on the other hand is archieved by small strip windows (for instance at the University Library Nottingham). In such libraries, with their room dimensions comming near the limits laid down by the fire regulations, an exclusive daylight illumination won't be sufficient. For that reason, reading and book storing areas are separated from each other again. Daylight areas will serve, as for instance at the University Library Bremen, for reading, possibly added by green areas, while the interior is reserved for the book stock, thus making artificial illumination necessary. This interior "book area" is sometimes two-storeyed, the reading area, however, remains single-storeyed, thus achieving twice the room height and a larger room depth for daylight illumination.

A better and constant room illumination is achieved, if the daylight enters from above. North-light roofs and roof superstructures allow illumination independent of the room depth. All light openings, however, require shading devices against harmful radiation. Sun protective devices should stop sunbeams, glare and heating, but at the same time guarantee the look out of the window and air conditioning, they should be quite easily to install, to use and to maintain, they should be durable and at the same time low-priced. Of course there is no device like that which comes up to all these requirements, so one has to find a compromise. Reflexion, absorption and dispersion of sunbeams should already take place outside the building, since an inside shading device heats the window panes and consequently the room. Mobile outside shading devices are slatted

roller blinds and jalousies. Fixed shading devices are, for instance, cantilevering roofs, balconies and other projecting elements. Parts of the standard equipment are antisun glasses usually consisting of a two-piece insulating glass with the outer pane beeing tinted, thus making use of absorption and reflexion for
sunshading. Disavantages, however, will make themselves felt in winter, when it will lack solar radiation to support room heating. Naturally, tinted glass is only employed for roof-lights, because at ground level people would not be able to look out of the windows. Besides that there are phototropic panes, as they are used for light-sensitive-glasses. Since their purchase would be involved with considerable expenses, a large-scale employment is beyond question for the time beeing.

Concerning daylight illumination, the structural design is determined by daylight, artificial lighting, however, needs no further structural considerations. The fact is that in the past most buildings and also library buildings were planned without taking artifical lighting as an essential part of the design into consideration. Most times illumination was added as late as when the building was already completed, which resulted in monotonous and undecorated rooms. The illumination system should on the contrary support the archetonic design in meeting the functional, human, visual and biological requirements. Naturally articificial illumination is closely connected with conditioning systems, since any artifical lighting produces heat which has to be carried off or transformed.

2.2. air conditioning

Even air conditioning does not essentially influence the appearance of libraries, apart from some libraries, in which air conditioning ducts are used for interior decoration. Usually the people working at the library will hardly notice the internal conditioning system, which have first made rooms, as spacious as they have been designed during the past 20 years, possible. Air conditioning has to meet a double function: to provide for human comfort by balancing natural ventilation and to preserve the library's book stock.

Due to modern building materials and construction methods, building have lost some of their solitidy in the course of years. Since the building cannot protect itself against influences of heat and cooling any more, conditioning systems had to undertake the necessary provisions. After repeated crises in the oil industry, the dependence on conditioning installations is going to be reduced. Well, human comfort can positively be achieved by means of construction methods. Less window areas, shading devices in summer, permeation of heat radiation in winter, adequate insulation and smaller rooms, allowing natural ventilation, are only some ways of energy-saving building methods, which are serving human comfort.

On the other hand, air conditioning with regard to the library's book stock, do raise a lot of questions: books and manuscripts consist chiefly of organic substances which are quickly harmed by the influence of temperature, humidity, light and pollution - the warmer, the quicker. It has been discovered that a 5° C reduction of temperature would lenghten the life of a book at 50 per cent. A high room temperature and high humidity speed up the emergence of

microbiological parasites. Air pollution, especially the percentage of sulfur dioxide, is instrumental to destruct the library stock. Librarians only gradually begin to perceive the danger in its whole extent, which has already assumed alarming proportions. U.S. research institutes have found out that, for instance, one third of the Washington Kongreß Library's stock is already in an advanced stage of destruction.

For this reason, the future employment of conditioning systems will be of utmost importance, especially at archival libraries. Since the requirements for people and books cannot be lumped together, a renewed, intensified separation of reading and book storing areas will be recommendable, as it had long been the case in Europe, especially in Germany.

2.3. transportation/passenger traffic

To reach the various floors of a building, there are, as there are in libraries, stairs, passenger lifts and moving stairs. Since their dimensions and safety rules are standardized, librarians have no influence on their appearance, at best on their size and number. In connection with the expansion of entrance halls during the past years, architects have been able to re-design staircase layouts. As to passenger lifts, librarians have to consider that they should not be hidden in some corner, but located, in the interest of adequate accessibility, in the library's entrance hall. Oddly enough there are no moving stairs in German libraries, since they are quite often employment in other countries, for example in Toronto, Birmingham and Rotterdam. Though moving stairs are more space-consuming than lifts, they have a higher conveying capacity and can

even be used as stairs when being out of order. People do prefer moving stairs, as an investigation by a German department-store chain has shown: regardless of the equal number of stairs, lifts and moving stairs available, the stairs were only used by 2 per cent of the passengers, lifts by 8 per cent, but 90 per cent used the moving stairs. A possible explanation could be the annoying waiting times at the passenger lifts.

3. library technology

3.1. book conveying system

Besides the transportation of passengers, the conveyance of books is of great importance to libraries especially to storage libraries. At the same time, the book transport forms
the connection beween construction technology and library technology, which consists of all technical facilities of a library serving the library stock, i.e. book binding and photocopying department, mechanical conveying and storing. While bookbinding and photocopying have nearly no influence on the design of a library, the latter does have some influence. Yet the influence of book transportation has been declining during the past years. Since large-scale open-access areas at ground level have made the users to help themselves to the books, there is no need of a mechanized transport system. That is why there are a lot of U.S. libraries without any book conveying system. If an increasing number of books is now going to be shelved in the library's stacks, mechanical conveying will perhaps gain some importance again. The systems which are most frequently employed are conveyor bells, box conveyors and self-moving conveyor systems. Conveyor belts are nearly exclusively used

for horizontal transportation and are employed to cover the distance between stack rooms and lending department, users do not get into contact with them.

Box conveyors with a load-carrying capacity up to about 3o pounds serve for vertical transport and run mostly in vertical shafts. Self-moving contaniers, which are provided with an electric motor and run on special tracks, are most variable, thus adapting easily to changing requirements. Problems regarding the construction of all these systems rise in connection with fire protection and noise insulation. Like every building, library buildings are divided into fire compartments according to the respective national fire regulations. Between the single compartments openings are required, which closures have to come up to the fire regulations, thus often entailing a complicated mechanism. Its opening and closing is frequently involved with considerable noise nuisance which has to be insulated, as well as the noise of the conveyor system. Other conveyor systems, for instance to transport call slips or messages, have nearly no influence on the building. Yet it has to be considered that the flexibility of rooms is little influenced by input and output.

3.2. mechanical storing

Certainly the influence of mechanical storing on the library building is much greater than that of mechanical conveying. The method of arranging books in shelves is certainly known to every librarian. Shelves are either made of wood or of steel or a combination of both materials. Though steel is resistant against outside influences, there is the dis-

advantage of condensation, a problem being now increasingly considered by curators. The water-absorptive capacity of wood, however, has the advantage of being moisture-controlling. For reasons of style, wood is used a lot today, for instance in the public rooms, where shelves are used for interior decoration. Free arrangement of shelves favours individual interior designs. Because of interests of expediency, the distances between girders should form a whole number multiple of the shelves' unit spacing. In this part of the library building, librarians pay special attention to flexibility: sliding shelf-systems have been developed, which frequently include integrated lighting systems.

The storing of books in special rooms, i.e. stacks, may, as we have already seen before, determine the exterior appearance of a library. Inside the stack rooms, books are kept in shelves at ground level. Multitier, self-supporting shelves have the disadvantage of being fixed in one position, thus allowing no subsequent alteration. Shelves at ground level are more variable, especially if they are rolling stacks,(forming a so-called compactshelving), which are operated manually or electrically.

A forerunner of compact shelving are the parallel roller cases of the Radcliffe Camera in Oxford, where the shelves can be pulled out into the gangway like chests in a pharmacy. Other examples of compact shelving are to be found in industrial storing: multitier stacks and revolving shelving have already been used at some libraries. As to revolving shelves, which are sometimes multistoreyed, the single shelves are passing along erecting platforms at the front side, where books can be taken out and reshelved

again. Revolving shelves are suitable for compact shelving of the book stock hardly often used. Certainly this system can be automatized, too, if the books are kept in small containers with machine-sensible coding and the manually-operated erecting platform is replaced by an automatic unloading and supplying mechanism. But that already belongs to automatic storing and conveying systems like "Randretriever" or "Conserv-a-trieve" units which are already in operation at a number of libraries. Here, too, the books are kept in coded contaniers, though in fixed multitier stacks. Robots are moving between them, taking out and replacing the single contaniers, transporting them to the front side of the shelves, from which they are carried to the lending desk by means of another conveyor system. This form of storing saves costs for lighting, cleaning and heating. What is more, there is the possibility of cold storage, since nobody is working in the stack rooms which, on the other hand, favours the conservation of the library stock.

4. final observations

So we have again reached a degree of library mechanization which already determined both theory and practice of many librarians during the 70's. Recently some librarians have begun to change their views and a tendency leading away from technology, if not even a certain hostility towards technology, have made themselves felt. Latest design for new library buildings have already shown first effects: attempts to do without conditioning systems and consideration of conventional building methods, increased insulation of buildings, use of less glass, sunshading of glass areas by

planting in summer, thus guaranteeing the penetration of sunbeams in winter, partitioning of rooms into smaller units, reduction of large free-access areas in favour of new stack rooms, natural illumination and ventilation by creating inner courts with green areas. Maybe the reduction of library mechanization will lead to more human comfort in library buildings, giving man the feeling to determine and command the degree of technology and not being controlled by it. This development goes hand in hand with a present architectural trend: the tendency towards international conformity seems to have been curbed and replaced by nostalgia, regionalism and individualism. A newly developed awareness of history and a revival of historical traditions will help to create distinct regional designs which, in accordance with the new library philosophy, will possibly lead away from the monotony and unformity of many libraries towards naturally developed forms, a harmonious style and human comfort, - to put it briefly, to a human architecture.

IFLA 1983

IFLA GENERAL CONFERENCE MUNICH 1983

Division: Management and Technology

Section: Library Buildings and Equipment

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GERMAN LIBRARY BUILDING IN THE LAST DECADE

Selected examples of Academic/Research Libraries and Public Libraries in the Federal Republic of Germany and Berlin (West)

Exhibition of the Deutsches Bibliotheksinstitut Berlin (German Library Institute) and the Building Committee of the German Library Institute

Accompanying materials

DEUTSCHER BIBLIOTHEKSBAU IM LETZTEN JAHRZEHNT

Ausgewählte Beispiele Wissenschaftlicher und Öffentlicher Bibliotheken in der Bundesrepublik Deutschland und Berlin (West)

Ausstellung des Deutschen Bibliotheksinstituts Berlin und der Baukommission des Deutschen Bibliotheksinstituts

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ACADEMIC/RESEARCH LIBRARIES

Introduction

The construction of academic/research libraries in the Federal Republic of Germany and Berlin (West) since the end of World War II is represented by about 100 new buildings. The plans, room arrangements and photos of most of these buildings have been collected in the Library Building Archives of the Deutsches Bibliotheksinstitut (DBI, German Library Institute) in Berlin. The Building Commission of the DBI selected 19 objects from this material for an exhibition which was shown at the Bibliothekartag (Diet of German Librarians) held in Berlin in 1979. Thereafter this exhibition has been shown in numerous cities in the Federal Republic of Germany. For the IFLA Congress in Munich in 1983 this exhibition has been brought up to date by the Building Commission so that it reflects the construction of libraries in this country within the last decade.

The majority of the buildings are located on universities since the founding of numerous new universities made the construction of library buildings necessary there. The architectonic forms chosen were in keeping with the current trends: initially there was a certain rationality and uniformity in the choice of concrete, steel or glass facades; then as a reaction to this we find a turning to more organic forms with polygonal - even round - ground plans, slopes and curves in the facades and bizarre roof forms. The concepts behind the library planning reflect the motto of a free democratic access to information. Large open-stack libraries exemplifying the principles of functionality and flexibility were built; their operation required the corresponding technical expenses. Under pressure to save energy and the world-wide recession, the most recent buildings show the tendency to use smaller elements in their construction, if possible without too great a technical extravagency; an even stronger tendency is the striving to create a humane atmosphere.

The exhibition and the accompanying texts are intended to give primarily the foreign visitors to the IFLA Congress a general idea of the developments in library construction in our country.

Dr.-Ing. Rolf Fuhlrott, Karlsruhe
Member of the Building Commission of the German Library Institute
and the IFLA Section on Library Buildings and Equipment

Augsburg - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek
Function:	University library
Director:	Dr. Rudolf Frankenberger
Address:	Alter Postweg, 8900 Augsburg
Federal land:	Bayern
Holdings at opening:	---
Projected holdings:	1,133,000 volumes
Architect:	Universitätsbauamt
Planning begun/ building begun/opening:	1973/1980/planned for 1985
Gross volume:	51,205 m^3
Usable area:	8,943 m^2
Net plan area:	12,182 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	6.60 m x 6.60 m
Heating/air conditioning/ ventilation:	Partial air conditioning
Conveyance systems:	Passenger elevator, freight elevator, book conveyor system
Reader working areas:	420
Affiliated departmental libraries:	4

Comments:

From the beginning the university library was planned as an integrated library system: in addition to the central library there are dependent partial libraries.

The central library is a new building on a new tract of land for the university to the south of the city. Construction was begun on August 25, 1980; occupancy is planned for spring 1985.

Particular attention was paid to the following in the planning:

central location of the library to department buildings served by partial libraries; central location of the closed-stack area (1.05 million volumes) with the possibility of opening individual areas as open stacks accessible from the reading room; extensive separation of user and personnel areas; concentration of information possibilities in the entry area (main information desk, bibliographical reference works (20,000 volumes), microfiche catalog); interlibrary loan; textbook collection (25,000 volumes) accessible from the entry level; arrangement of the reading room on three levels; arrangement of shelving blocks for reference works (30,000 volumes), student library (8000 volumes) and journals on display over the entire area thereby creating smaller, quiet zones; book processing departments close together to avoid extensive transport distances; natural lighting in as many rooms as possible (exception: closed stacks, textbook collections, AV studios, exhibition room).

Berlin - Staatsbibliothek Preußischer Kulturbesitz

Data:

Name:	Staatsbibliothek Preußischer Kulturbesitz
Function:	Academic/research universal library with supraregional importance
Director:	Dr. Ekkehart Vesper
Address:	Potsdamer Straße 33, 1000 Berlin 30
Holdings at opening:	2,290,000 volumes
Projected holdings:	---
Architect:	Scharoun
Planning begun/ building begun/opening:	1965/1967/1978
Gross volume:	420,000 m^3
Usable area:	48,000 m^2
Gross plan area:	81,300 m^2
Construction:	Prestressed concrete, reinforced concrete, reinforced concrete supports
Construction grid:	---
Heating/air conditioning/ ventilation:	Air conditioning and static heating
Conveyance systems:	23 passenger and freight elevators, book conveyor system, pneumatic post
Reader working places:	600
Affiliated departmental libraries:	---

Comments:

The house has a ribbon-like structure. The part of the building used primarily for internal departments lies on the east side and is towered over by the long closed-stack storage area whose form gives the external shape of the library its characteristic outline. Sinking toward the west is the ribbon-like complex of the reading rooms which is constructed on a type of pedastal. Attached to this main building complex is the small northern part used primarily by the library administration.

The protruding flat section to the southwest houses the Ibero-Amerikanisches Institut whose library works closely with the Staatsbibliothek. Elevated alongside this is the lecture-hall complex.

Open staircases lead from the spacious dual-leveled entry hall to the reading room level on the second floor; in between is a lobby with a cafeteria. The reading rooms are arranged in an open multi-storied hall interspersed with plateaus giving it a "reading-room landscape" appearance. Here is space for approximately 600 users, reference holdings of up to 180,000 volumes and the current volumes of approximately 3000 journals. Adjacent to this is an information center with catalogs and bibliographies.

The bulk of the book holdings are in closed stacks in a self-supporting four-storied shelved structure in the upper floors of the building and in a two-storied structure in the basement. The closed-stack areas have a capacity of approximately four million volumes.

Bielefeld - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Bielefeld
Function:	University library
Director:	Dr. Harro Heim
Address:	Universitätsstraße, 4800 Bielefeld
Federal land:	Nordrhein-Westfalen
Holdings at opening:	Approximately 706,000 volumes
Projected holdings:	1,600,000 volumes
Architects:	Köpke, Kulka, Töpper; Herzog (to 1971); Siepmann (to 1973)
Planning begun/ building begun/opening:	1970/1971/1976
Gross volume:	---
Usable area:	24,498 m^2
Gross plan area:	28,744 m^2
Construction:	Composite steel as prefab construction
Construction grid:	7.20 m x 7.20 m; 4.80 m x 7.20 m
Heating/air conditioning/ ventilation:	Air-conditioning system
Conveyance systems:	Elevators
Reader working places:	2,700
Affiliated departmental libraries:	---

Comments:

The university library is integrated into the university. It is conceived as a total library, i.e. an "integrated" library system and is subdivided into a central library (which performs central services such as acquisition, classification and cataloging) and subject libraries. The books which have been processed in the central library are shelved and available for use in these subject libraries. The use of institute and seminar libraries has been intentially dispensed with.

Spatially the library is a part of the main university building; there is no library building. The accessible holdings are shelved on the first floor. For several subject areas there is additional space on the ground floor.

The book processing department, interlibrary loan department and information center are also on the first floor and are arranged to correspond to the path of the book through the library.

Bremen - Staats- und Universitätsbibliothek

Data:

Name:	Staats- und Universitätsbibliothek Bremen
Function:	University and state library
Director:	Dr. Hans-Albrecht Koch
Address:	Bibliotheksstraße, 2800 Bremen 33
Federal land:	Free Hanseatic city Bremen
Holdings at opening:	1,105,570 volumes
Projected holdings:	1,900,000 volumes with compact shelving
Architect:	Universitätsbauamt Bremen
Planning begun/ building begun/opening:	1966/1971/1976
Gross volume:	127,780 m^3
Usable area:	19,526 m^2
Gross plan area:	26,760 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	7.20 m x 7.20 m
Heating/air conditioning/ ventilation:	Fully air conditioned
Conveyance systems:	2 passenger and 1 freight elevator, 2 book lifts, box conveyor system, conveyor belts
Reader working places:	600
Affiliated departmental libraries:	6

Comments:

The university library is an integrated library system. The central library is in the middle of the university; it is supplemented by departmental libraries.

The structure of the central library was determined by the requirement that book, user and librarian be brought back together again; this was to be realized with a classified open-stack arrangement of the holdings. This requirement dispensed with the classical triple division of user area, administration area and closed stacks. Instead the structure of the library is primarily determined by the separation into subject divisions and internal operations division.

The subject divisions are located in the open-stack levels near the book holdings, the catalog, reference works and the working areas.

The internal operations division (acquisition, cataloging, technical services, binding and circulation) are located on levels 0 (= first floor) and 1 (= ground floor) on the west side of the building under the rooms of the subject divisions; this creates a sort of administrative section vertically.

Level 4 (= third floor) has a different arrangement because of the spatial requirements of the special divisions housed here (German journalism research center, AV center, rare books and manuscripts).

Dortmund - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Dortmund
Function:	University library
Director:	Dr. Valentin Wehefritz
Address:	Vogelpothsweg 76, 4600 Dortmund
Federal land:	Nordrhein-Westfalen
Holdings at opening:	480,000 volumes (130,000 in departmental libraries)
Projected holdings:	1,400,000 volumes
Architect:	Henning + Dietrich, Bochum
Planning begun/ building begun/opening:	1971/1974/1976
Gross volume:	67,230 m^3
Usable area:	11,477 m^2
Gross plan area:	15,927 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	8.40 m x 8.40 m
Heating/air conditioning/ ventilation:	Partial air conditioning
Conveyance systems:	2 passenger elevators, freight elevator, box conveyor system, conveyor belt
Reader working places:	500
Affiliated departmental libraries:	14

Comments:

The new library building has a central location on the university campus. The circulation desk, public catalogs, reference books, central information desk, newspaper reading room, textbook collection and a lecture room are housed in the two-storied entry hall. The user reaches the second and third floors via a spacious stairwell or elevators. 600,000 volumes are shelved in the reading rooms and stacks here. Stacks for seldom-used holdings are located in the two basement floors. The library administration has its rooms on the first floor which is constructed as a gallery and is optically and spatially part of the entry hall.

The building has a reinforced concrete construction and rests on 125 large bore piles. Each quarter of the building has its own utility core with fire-escape stairwell; these cores are constructed with reinforced concrete and bear the static support for the building. With only a few exceptions all the other walls are non-supporting and moveable. Because the surface area of each successive floor increases (the first floor projects beyond the ground floor and the second floor projects beyond the first floor), the building has a strong plasticity.

Düsseldorf - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Düsseldorf
Function:	University library, central library
Director:	Prof. Dr. Günter Gattermann
Address:	Universitätsstr. 1, 4000 Düsseldorf 1
Federal land:	Nordrhein-Westfalen
Holdings at opening:	1,125,000 volumes
Projected holdings:	1,386,000 volumes
Architect:	Volkamer; Wetzel; Beckmann, Düsseldorf
Planning begun/ building begun/opening:	1972/1975/1979
Gross volume:	90,470 m^3
Usable area:	14,342 m^2
Gross plan area:	20,185 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	8.40 m x 8.40 m
Heating/air conditioning/ ventilation:	Radiator/10 air conditioners
Conveyance systems:	4 passenger elevators, 2 freight elevators, pneumatic post, book conveyor system
Reader working places:	842
Affiliated departmental libraries:	12

Comments:

The central library building lies on a large square in the middle of the campus. Green areas connect the library to the adjacent institute buildings.

The building is arranged clearly for the user. The ground floor is the main entry level. The six-meter high entry hall is connected to the information center with catalogs, reference area, textbook collection, circulation, interlibrary loan and the centralized checkout desk for the open-stack holdings; the representatively decorated lecture hall on the mezzanine level is reached from the entry hall. The mezzanine level in the hall houses the administration and a lounge for the personnel.

From the entry level the user has direct access to three reading levels with open-stack holdings, reading area, work cabins and rooms for working in groups. The shelving zone in the core of these levels can be expanded by building mezzanine floors onto the existing shelving posts.

In the subterranean levels are found the closed-stack holdings in compact shelving units, the technical processing departments and the house maintenance (in particular the air conditioning units).

Warm and unobtrusive colors provide an atmosphere which the users describe as comfortable and cozy: red bricks, very little fair-faced concrete and a dark redish-brown wood tone used for the window frames, counters, doors, railings and panelling.

Duisburg - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Duisburg
Function:	University library
Director:	Dr. Ulrich Pflugk
Address:	Lotharstraße 65, Gebäude LK, 4100 Duisburg 1
Federal land:	Nordrhein-Westfalen
Holdings at opening:	Approximately 550,000 volumes
Projected holdings:	740,000 volumes
Architect:	Tomm, Zentrale Planungsstelle zur Rationalisierung von Landesbauten, Aachen
Planning begun/ building begun/opening:	1977/1980/1983
Gross volume:	50,058 m^3
Usable area:	8,173 m^2
Gross plan area:	12,299 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	Octagonal (ø 9.50 m); square grid (3,94 m)
Heating/air conditioning/ ventilation:	District heating/ventilation system
Conveyance systems:	2 passenger and freight elevators, 1 book lift
Reader working places:	555 (planned: 650)
Affiliated departmental libraries:	1 (planned: 2)

Comments:

The new library building stands in the middle of the university forum surrounded by older buildings used by the university.

With its dark aluminum/glass facade and inner courts the red brick building gives a clear city-planning emphasis to this part of the campus. The heart of the structure is the five-storied core in the form of a rosette; connected to it is a flat fuilding on stilts. This flat building is partially two-storied (otherwise one-storied) and is interspersed with inner courts.

The ground floor contains the information desk, circulation desk, catalogs, general bibliographies, AV media, library administration and textbook collection; the first floor contains the offices for technical book services, rooms for the subject departmental heads, reading areas, open stacks and periodical reading area. The remaining upper stories contain additional reading areas and open stacks. Mezzanine galleries and the octagonal structure made it possible to create an island-like character by breaking up the reading and book areas into smaller units.

The university library, which was conceived as a single-library systems, offers its patrons more than three-fifths of its holdings in open stacks; an additional fifth is directly accessible in an open storage area.

Erlangen-Nürnberg - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Erlangen-Nürnberg
Function:	Main library in the university library system
Director:	Dr. Dr. Bernhard Sinogowitz
Address:	Universitätsstraße 4, 8520 Erlangen-Nürnberg
Federal land:	Bayern
Holdings at opening:	Approximately 850,000 volumes (excluding dissertations)
Projected holdings:	1,159,080 volumes (new buildings)
Architect:	Universitätsbauamt; J. Kutzer
Planning begun/ building begun/opening:	1967/1971/1974
Gross volume:	51,607 m^3
Usable area:	10,595 m^2
Gross plan area:	15,684 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	6.50 m x 6.50 m
Heating/air conditioning/ ventilation:	District heating: ventilation system with humidifier and cooling
Conveyance systems:	2 passenger elevators, freight elevator, box conveyor system, pneumatic post
Reader working places:	423
Affiliated departmental libraries:	Central library (main library, 3 branch libraries), 15 partial libraries

Comments:

The assignment was to add a new library building to an existing old one and to integrate these two buildings into a functional entity. After taking the city-planning prerequisites into consideration, a three-story building was built from whose middle a book-storage tower protrudes; to the north there is a recessed fourth story.

The modern building houses the user services; the old building accommodates the administrative and resources and technical services departments (acquisitions, cataloging, rare books, manuscripts and graphic collection; administration with central business offices). The entry hall, located on the ground floor across from the entrance to the old building, serves as a central traffic dispersion area. A meeting room with 135 seats is also located here. The public areas (reading rooms, catalog room, circulation) are grouped around the book storage in the two upper stories. There is a cafeteria on the second floor. The special departments are housed on the third floor. The basement is reserved for house maintenance and a closed stack.

Freiburg - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek
Function:	University library
Director:	Prof. Dr. Wolfgang Kehr
Address:	Werthmannplatz 2, 7800 Freiburg
Federal land:	Baden-Württemberg
Holdings at opening:	1,267,300 volumes; 589,100 dissertations
Projected holdings:	2,800,000 volumes
Architect:	Universitätsbauamt
Planning begun/ building begun/opening:	1968/1973/1978
Gross volume:	164,500 m^3
Usable area:	27,017 m^2
Gross plan area:	---
Construction:	Reinforced concrete skeleton construction
Construction grid:	7.50 m x 7.50 m
Heating/air conditioning/ ventilation:	District heating/fully air conditioned
Conveyance systems:	6 passenger elevators, freight elevator, pneumatic post, book conveyor system
Reader working places:	---
Affiliated departmental libraries:	6

Comments:

The university library is downtown, separated from the buildings of the humanities and social science center by a busy street. A pedestrian bridge connects the new building to the university campus. This also influenced the unusual location of the entry and main hall on the second floor.

Characteristic features are the large area accessible from the main hall via a large staircase; it contains 155 places in the newspaper reading area, areas for working in groups, extensive open-stack and circulating holdings, the recreational library and the textbook collection.

The library has the following arrangement:

basement (2nd and 3rd level):	closed stacks for a maximum of 2.8 million volumes
basement (1st level):	parking space for 205 cars
ground floor:	entry, delivery, mail room, technology center, shops
1st floor:	open stacks, area still to be assigned
2nd floor:	entry and main hall with union catalog, information center, circulation, meeting room, cloakroom, cafeteria
3rd floor:	newspaper reading room, group working rooms, administration, technical services
4th and 5th floors:	reading rooms with 770 places
top floor:	technical and machine rooms

Hannover - Niedersächsische Landesbibliothek

Data:

Name:	Niedersächsische Landesbibliothek
Function:	Federal land library
Director:	Dr. Wilhelm Totok
Address:	Waterloostr. 8, 3000 Hannover 1
Federal land:	Niedersachsen
Holdings at opening:	---
Projected holdings:	1,100,000 volumes (book storage)
Architect:	Brütt + Matthies, Göttingen
Planning begun/ building begun/opening:	1966/1972/1976
Gross volume:	55,000 m^3
Usable area:	13,000 m^2
Gross plan area:	---
Construction:	Reinforced concrete skeleton construction
Construction grid:	6.0 m x 6.0 m
Heating/air conditioning/ ventilation:	Air conditioning/ventilation system
Conveyance systems:	3 elevators, box conveyor system, pneumatic post
Reader working places:	260
Affiliated departmental libraries:	3 (additional 2 in construction and planning)

Comments:

History: Founded in Hannover in 1665 as the castle library of the Guelphic princes. From 1676 to 1716 the philosopher G.W. Leibniz was the head librarian of the enlarged court library. After 1720 it was called the "Königliche öffentliche Bibliothek" (Royal Public Library). After the Hannover kingdom ceased to exist, there was periodic danger that the library would be dissolved. Following a stagnation lasting decades, a slow consolidation was taken after 1900. After the federal land Niedersachsen was reinstated, it was renamed the "Niedersächsische Landesbibliothek" (1947).

Functions: Central regional library for the entire area of Niedersachsen with the typical functions of a federal land library; at the same time the central library for the university in non-technical and non-scientific areas.

Organization, Special Divisions: Central departments (management, administration, technical services); central library (actual federal land library with the departments: acquisitions, cataloging, user services, manuscripts); departmental libraries of the Hannover University; library educational authorities and library school; Leibniz Archives; Leibniz Research Library; documentation on Niedersachsen together with the deposit-copy office.

Konstanz - Universitätsbibliothek

Data:

Name:	Bibliothek der Universität Konstanz
Function:	University library
Director:	Dr. Joachim Stoltzenburg
Address:	Universitätsstraße 10, 7750 Konstanz
Federal land:	Baden-Württemberg
Holdings at opening:	440,000 volumes; 48,000 dissertations
Projected holdings:	1,300,000 volumes in open stacks
Architect:	Universitätsbauamt Konstanz
Planning begun/ building begun/opening:	1964/1970/1972 and 1977
Gross volume:	--- (integrated in the university)
Usable area:	--- (integrated in the university)
Gross plan area:	--- (integrated in the university)
Construction:	Reinforced concrete skeleton construction
Construction grid:	7.20 m x 7.20 m
Heating/air conditioning/ ventilation:	Fully air conditioned in public area
Conveyance systems:	Passenger elevator, freight elevator, book conveyor system
Reader working areas:	600
Affiliated departmental libraries:	None (library the sole supplier of literature for the university)

Comments:

Important factors for the architectural form of the library:

1. A very compact, strongly subdivided construction method conforming to the hillside location of the entire university;
2. The spatial penetration of the building elements arranged according to the individual faculties with corresponding areas for the integrated and connected arrangement of books;
3. Presentation of the holdings in an open-stack classified arrangement and reading areas in the immediate vicinity of the shelves;
4. Foregoing with the classical reading room by partially replacing it with an information center;
5. Placing the information center (with the main entry to the book area) at a central junction of the internal university traffic with a simultaneous separation from the technical processing departments;
6. Housing the technical processing departments over various floors in a tower building.

Münster - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Münster
Function:	University library
Director:	Dr. Robert Reichel
Address:	Krummer Timpen 3-5, 4400 Münster
Federal land:	Nordrhein-Westfalen
Holdings at opening:	850,000 volumes
Projected holdings:	1,400,000 volumes
Architect:	Staatshochbauamt für die Universität Münster
Planning begun/ building begun/opening:	1963/1967/1973
Gross volume:	51,000 m^3
Usable area:	11,629 m^2
Gross plan area:	16,060 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	5.40 m x 5.40 m
Heating/air conditioning/ ventilation:	Fully air conditioned, heat emission (2/3 radiator, 1/3 air-conditioning system)
Conveyance systems:	3 passenger elevators, freight elevator, book conveyor system, pneumatic post
Reader working places:	650
Affiliated departmental libraries:	---

Comments:

The building is constructed for flexibility using a modular structure; the distance between pillars is 5.40 meters, with a ceiling load capacity throughout of 1,000 kp/m^2. There are stacks in the basement; the main building above them is a three-part structure with two floors, the southeast section having three floors. On the ground floor are the information and circulation areas and the book processing department. The reading rooms are located on the first floor; the special collections, open-access holdings of current journals for reference purposes and carrels (both lockable and open) are found on the second floor.

With the exception of some offices, the building is fully air conditioned. Tinted windows offer protection from the sun. Books are transported from floor to floor by elevators and telehoists and within the floors by conveyor systems.

Oldenburg - Universitätsbibliothek

Data:

Name:	Bibliotheks- und Informationssystem der Universität Oldenburg
Function:	University library
Director:	Hermann Havekost
Address:	Uhlhornweg 49-55, 2900 Oldenburg
Federal land:	Niedersachsen
Holdings at opening:	600,000 volumes
Projected holdings:	1,602,000 volumes
Architect:	Eller, Moser, Walter + Partner, Düsseldorf; Eilers, Berk, Parisius, Moritz, Oldenburg; Hermann + Angelis, Oldenburg Project supervision: Moritz, Oldenburg
Planning begun/ building begun/opening:	1974/1980/1982
Gross volume:	145,000 m^3
Usable area:	19,700 m^2
Gross plan area:	33,300 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	7.20 m x 8.40 m and 8.40 m x 8.40 m
Heating/air conditioning/ ventilation:	District heating/fully air conditioned in book and reading areas
Conveyance systems:	2 passenger elevators, 1 freight elevator, box conveyor system
Reader working places:	1,220
Affiliated departmental libraries:	1 (under construction)

Comments:

The university library was completed after only two years of construction. It lies at what will later be the center of the university and is connected to the gymnasium and student dining hall by a joint entry area.

Besides the operation of the university library as a one-library system, services for documentation, archive storage, AV media, printing and copying are located in the new building.

Book holdings and reading areas are interwoven in the central library. The entire holdings are in open stacks. Each subject area has reading zones, carrels, rooms for groups and the department head and classified arrangement (with the possibility of storing holdings in compact closed-stack shelving areas).

The differentiated ground plan and the verticle arrangement of four main and three mezzanine levels connected by a planted light court with a central staircase creates an intimate atmosphere. The use of furniture from different manufacturers reinforces this impression.

From the entry hall with bookstore, lecture and exhibition hall, the user has access to the union catalog, textbook collection and general reading room. A mezzanine gallery extending into the entry hall has a newspaper reading room with an automat cafeteria.

Paderborn - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Paderborn
Function:	University library
Director:	Klaus Barckow
Address:	Warburger Straße 100, 4790 Paderborn
Federal land:	Nordrhein-Westfalen
Holdings at opening:	375,551 volumes
Projected holdings:	1,200,000 volumes
Architect:	Lehmann + Partner, Dortmund
Planning begun/ building begun/opening:	1972/1974/1977
Gross volume:	47,091 m^3
Usable area:	9,535 m^2
Gross plan area:	10,383 m^2
Construction:	Prefab reinforced concrete skeleton construction
Construction grid:	7.20 m x 7.20 m
Heating/air conditioning/ ventilation:	Fully air conditioned
Conveyance systems:	Passenger elevators, freight elevators
Reader working places:	400
Affiliated departmental libraries:	Department libraries in Höxter, Meschede, Soest

Comments:

The library was constructed as a single-library system for supplying the literature needs of the university. There are neither institute nor seminar libraries and no reference holdings outside of the library.

With only relatively few exceptions, all the holdings have a classified arrangement in open stacks.

The new building is on the university campus. It shares the main entrance of the building complex with the central administration and the student dining hall and thus is "on the path" for its users.

The building has six floors: the stacks in the basement; a large entry hall with textbook collection, circulation desk, information desk and bibliographic reference section on the ground floor; the administration area on the first floor; departmental libraries for the sciences, humanities, history, economics and the social sciences on the second through fourth floors.

The colors used in the interior decoration are green (carpeting), brown (small partitions) and yellow (shelves, signs).

Regensburg - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek
Function:	University library
Director:	Dr. Max Pauer
Address:	Universitätsstraße 31, 8400 Regensburg 1
Federal land:	Bayern
Holdings at opening:	552,000 volumes
Projected holdings:	910,000 volumes
Architect:	von Branca, München
Planning begun/ building begun/opening:	1969/1971/1974
Gross volume:	81,677 m^3
Usable area:	11,544 m^2
Gross plan area:	21,092 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	8.40 m x 8.40 m
Heating/air conditioning/ ventilation:	District heating/ventilation system
Conveyance systems:	Passenger elevators, freight elevators, book conveyor system
Reader working places:	270
Affiliated departmental libraries:	10

Comments:

The University of Regensburg has an integrated library system consisting of a central library with superordinate duties and presently ten branch libraries which spatially and functionally are deligated to the departments. The largest part of the book holdings are in open stacks and are directly accessible for all users. There is sufficient capacity for approximately 25,000 to 353,000 volumes in the existing reading rooms and branch libraries respectively.

Siegen - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek
Function:	University library
Director:	Dr. Walter Barton
Address:	Adolf-Reichwein-Straße, 5900 Siegen 21
Federal land:	Nordrhein-Westfalen
Holdings at opening:	280,000 volumes
Projected holdings:	550,000 volumes
Architect:	Busmann und Schneider-Wessling, Köln; Arlt + Philipp, Kreuztal; Gerber-Stelljes + Partner, Meschede
Planning begun/ building begun/opening:	1972/---/1977
Gross volume:	---
Usable area:	6,130 m^2
Gross plan area:	10,557 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	7.20 m x 7.20 m
Heating/air conditioning/ ventilation:	Fully air conditioned in public area
Conveyance systems:	Passenger elevators, freight elevators. book conveyor system, pneumatic post
Reader working places:	497
Affiliated departmental libraries:	3

Comments:

The library of the university towns of Duisburg, Essen, Paderborn, Siegen and Wuppertal is a novelty in the Nordrhein-Westfalen library landscape. With a relatively modest staff and without departmental and institute libraries it supplies the literature needs of an entire university. Characteristic are:

- centralized technical services for all units;
- decentralized, primarily open-stack shelving in five "subject libraries";
- spacious user work areas near the classified subject arrangement of book and periodical holdings, no reading rooms;
- integrated data network with the university library center in Köln for processing orders, taking inventory, cataloging and compiling statistics;
- data network with the computer center of the Ruhr University in Bochum for processing circulation data;
- data management of periodical holdings in the Serials Data Base of the Deutsches Bibliotheksinstitut (German Library Institute) in Berlin.

In order to minimize distances and staff, all the centralized services (administration, technical services, book storage, library technology, interlibrary loans) and three departmental libraries with a joint circulation area and an integrated textbook collection are located in the new building.

Trier - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek Trier
Function:	University library
Director:	Dr. Ulrich Ott
Address:	Kohlenstr. 68, 5500 Trier-Tarforst
Federal land:	Rheinland-Pfalz
Holdings at opening:	Approximately 210,000 volumes
Projected holdings:	800,000 volumes
Architect:	Staatliches Hochbauamt Trier
Planning begun/ building begun/opening:	1974/1975/1978
Gross volume:	79,903 m^3
Usable area:	10,715 m^2
Gross plan area:	15,724 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	7.20 m x 7.20 m
Heating/air conditioning/ ventilation:	District heating/fully air conditioned/ ventilation system
Conveyance systems:	Box conveyor system
Reader working places:	Approximately 350
Affiliated departmental libraries:	Departmental reading rooms in adjacent departmental buildings

Comments:

The central library is at the center of the university campus.

The main entrance is on a forum from which it is possible to reach all the university facilities (lecture halls, lab rooms, student dining hall, later also administration and maintenance buildings) quickly via a network of footpaths.

From the central reading room on the first floor of the central library there is direct access to the subject reading rooms in the adjacent departmental buildings. Thus a complete library continuum is created in which there is open access to all information, circulation and reading areas after one has passed one of the control desks at various locations in the library.

The Trier integrated library system (a functional entity between university and library, whereby the subject sections of the university library are also the departmental libraries) has thereby received its permanent form from its building structure.

Würzburg - Universitätsbibliothek

Data:

Name:	Universitätsbibliothek
Function:	University library
Director:	Dr. Gottfried Mälzer
Address:	Am Hubland, 8700 Würzburg
Federal land:	Bayern
Holdings at opening:	933,608 volumes
Projected holdings:	---
Architect:	von Branca, München
Planning begun/ building begun/opening:	1967/1975/1981
Gross volume:	70,165 m^3
Usable area:	14,351 m^2
Net plan area:	18,560 m^2
Construction:	Reinforced concrete skeleton construction
Construction grid:	8.40 m x 8.40 m
Heating/air conditioning/ ventilation:	District heating/partial air conditioning/ ventilation system, humidifier
Conveyance systems:	Passenger elevators, freight elevators book conveyor system, pneumatic post
Reader working places:	580
Affiliated departmental libraries:	117

Comments:

The new central library building is located on the expansion site of the university on the eastern outskirts of Würzburg. The student dining hall, several department buildings, the computer center and technical facilities are in the immediate vicinity.

The library was not planned as an individual building; it must be viewed in connection with the student dining hall (built by the same architect), the forum between the library and the dining hall and the two-level basement parking area under it. This had consequences for the library building: large subterranean stacks were not possible, the air-conditioning system and a large portion of the stacks are in the third and fourth floor of the library.

The new building is a modern library with a large entry hall, information center, circulation desk and reading room for bibliographies and reference works on the ground floor. A two-storied main reading room in the southern area contains approximately 317,000 openly-accessible volumes, approximately 4600 periodicals on display, 300 work areas, adjacent individual cabins and group working rooms. In the western area special reading rooms are scattered over four floors.

The administration in the northern area is spaciously planned and is part of the user area. The closed stacks have space for approximately 800,000 volumes.

Wuppertal - Gesamthochschulbibliothek

Data:

Name:	Gesamthochschulbibliothek
Function:	University library
Director:	Dr. Dietrich Stäglich
Address:	Gaußstraße 20, 5600 Wuppertal
Federal land:	Nordrhein-Westfalen
Holdings at opening:	380,000 volumes
Projected holdings:	1,200,000 volumes
Architect:	Lehmann + Partner, Dortmund
Planning begun/ building begun/opening:	1973/1974/1977
Gross volume:	54,101 m^3
Usable area:	7,869 m^2
Gross plan area:	12,750 m^2
Construction:	Prefab skeleton construction
Construction grid:	7.20 m x 7.20 m
Heating/air conditioning/ ventilation:	District heating/ decentralized air conditioning
Conveyance systems:	2 passenger elevators, 2 book lifts
Reader working places:	951
Affiliated departmental libraries:	---

Comments:

The library is conceived as an integrated library system with a central library and four departmental libraries in a spatially integrated unit. It does not have its own building, but is attached to the building complex of the university. The external areas are either directly adjacent to the stairwells of the department buildings or are partially included in these buildings.

The rooms of the library extend over five floors. The closed stacks and maintenance department are in the basement. The central library with book processing departments, administration and central user services is on the entry floor. Among the central user services are the centralized circulation department, textbook collection, information center and lecture room. The departmental libraries in the three upper floors are reached by an internal stairwell. There approximately 530,000 volumes are shelved in a classified arrangement in open stacks. Approximately 70% of these holdings are circulated. The remaining holdings (including all the periodicals) may only be used on the premises. Reading areas and carrels are provided for working in the library.

PUBLIC LIBRARIES

Introduction

Important developments in the construction and furnishing of public libraries have occurred recently. Several tendencies justify referring to this as a "new" open-stack library. This need not apply specifically to the area available for use, even though progress is unmistakable here. Nevertheless, developments are visible which arise from an increased diversity of library services. Thus today's public libraries not only have open shelving areas, increasingly areas are found for listening to music, holding public events, working in groups, having discussions and playing games. In addition to the strictly work areas, there are informal areas with easy chairs and the possibility of browsing.

Particular value is placed on the "market place", an area for encounters, exhibitions and various forms of public events. The completely expanded public library today is work area and social meeting place in one.

For architects the assignment to build a "public library" has become increasingly more attractive. Several of the buildings presented in this exhibition resulted from competitions or have been recognized with architects' prizes.

It is not seldom that architects and librarians concur on the philosophy of the "open house". The conflict-free coexistence of noisy and quiet library zones is, of course, still in need or more intensive efforts.

In the past years librarians have learned that the quality of interior design and the perceptual qualities of the library building need not be of secondary importance.

Naturally one should not be blind to the fact that the most simple basic requirements still must be concentrated on: favorable location, sufficiently large and connected tract of land, a minimum number of levels for the public areas and sufficient expansion possibilities are by no means obvious for every library financing body.

An investigation of the Building Commission of the Deutsches Bibliotheksinstitut (DBI, German Library Institute) revealed that 103 buildings with an area exceeding 300 m^2 were opened between January 1980 and April 1982; most of them were in small and medium-sized towns. Only in 38 cases were these in new buildings; a major factor was that available buildings were to be used for public libraries. 54 libraries are located under one roof with other institutions, for example with schools adult evening schools and civic houses.

Wolfram Henning, Stuttgart
Member of the Building Commission of the German Library Institute

Berlin-Tempelhof - Stadtbücherei

(New building)

Data:

Name:	Stadtbücherei Berlin-Tempelhof
Function:	Main library with mobile library
Address:	Götzstraße 10-12, 1000 Berlin-Tempelhof
Federal land:	Berlin
Population of Tempelhof:	167,000
Holdings at opening:	60,000 units
Architect:	Bodo Fleischer
Library consultant:	Büchereiverwaltung Tempelhof
Furnishings:	planmöbel, Espelkamp
Usable area:	1362 m^2 for public zones; total usable area incl. administrative rooms, mobile library, storage areas, etc.: about 3200 m^2
Building costs:	5.5 million DM
Planning begun/ building begun/opening:	1965/1976/1978

Comments:

The architect Bodo Fleischer is Scharoun's pupil. The arrangement of the levels and the use of light of this "little State Library" calls to mind the large prototype, the Berlin Staatsbibliothek Preußischer Kulturbesitz (State Library of the Prussian Cultural Foundation). Especially notable is the forum-like area of the children's library where various activities are held.

Since Tempelhof was the last Berlin district to get a new building for its district central library, this "overdue" library is also the most modern.

Bochum - Stadtbücherei, Zentralbibliothek

(Library in a multipurpose building)

Data:

Name:	Bildungs- und Verwaltungszentrum
Function:	Central library of the Bochum library system, adult education school, administrative rooms
Address:	Bildungs- und Verwaltungszentrum am Rathaus 4630 Bochum
Federal land:	Nordrhein-Westfalen
Population:	428,000
Holdings at opening:	238,009 units
Architect:	Bahle, Köhnke & Stosberg, Hannover
Furnishings:	Pohlschröder
Usable area, library:	4660 m^2
Planning begun/ building begun/opening:	1975/1977/1980

Comments:

The public areas are arranged over three levels about a spacious open interior staircase. The ground floor houses the information department, newspaper zone and fiction. From here steps lead down to the children's department and up to the non-fiction which is arranged in three large color-coded shelving groups. A music library is also located on the first floor.

The library and the adult evening school jointly use 458 m^2 of the building. Especially notable is the common area on the first floor for the use of audio-visual media.

Erkrath-Hochdahl - Bücherei

(Library in a multipurpose building)

Data:

Name:	Bücherei Hochdahl, Stadtbücherei Erkrath
Function:	Library in the civic center "Bürgerhaus Hochdahl" (city of Erkrath, district "Neue Stadt Hochdahl")
Address (civic center):	Sedentaler Straße 105-107, 4006 Erkrath
Federal land:	Nordrhein-Westfalen
Population of Hochdahl (projected):	35,000
Holdings at opening:	23,000 units
Architects:	Wolfgang Pohl, Ursula Ringleben, Holger Drees, Düsseldorf
Furnishings:	EKZ, Reutlingen; Schulz, Speyer
Built-over area:	3320 m^2
Usable area, library:	805 m^2
Total building costs:	14 million DM
Planning begun/ building begun/opening:	1974/1977/1980

Comments:

The facilities in the Bürgerhaus (civic center) are grouped around a large multipurpose hall. These include a discotheque, meeting rooms, restaurants, bowling alley, library, senior citizen's day center, social medical examination office, apartments and a planetarium. An indoor pool occupying the same space is located on the other side of the plaza.

The casual open arrangement of the areas and the simple materials make the building different from the usual civic or cultural center. It is quite understandable why the professional journal "Bauwelt" compared it to the communication centers of the Dutch architect van Klingeren.

From a librarian's point-of-view, the library has the disadvantage of not being screened off from the multipurpose hall which is very loud during the day. The number of users who visit the library for activities of a short duration has increased enormously since the library moved into the "Bürgerhaus".

Hannover - Stadtbibliothek, Zentralbibliothek

(Library renovation and enlargement)

Data:

Name:	Stadtbibliothek Hannover, Zentralbibliothek
Function:	Central library with the character of an academic/research library
Address:	Hildesheimer Straße 12, 3000 Hannover
Federal land:	Niedersachsen
Population:	547,000
Open-stack holdings after 1st enlargement:	180,000 volumes
Projected open-stack holdings:	250,000 volumes (after 2nd enlargement)
Total holdings at present:	about 500,000 units
Architect:	Rolf Ramcke, Hochbauamt Hannover
Library consultant:	Jürgen Eyssen, Hannover
Furnishings:	Schulz, Speyer
Usable area, old building:	2503 m^2
Usable area, 1st enlargement:	1790 m^2
Usable area, planned 2nd enlargement:	about 5700 m^2 (totaling about 10,000 m^2)
Old building:	1931, architect: Fritz Elkart
Planning begun:	1963
1st enlargement:	1973/74
Building costs, 1st enlargement:	2.5 million DM (+500,000 DM for furnishings)
2nd enlargement:	planned

Comments:

The combination of an old and a new building was publicized as exemplary by the Bund Deutscher Architekten (Association of German Architects) in 1975, the year for the conservation of historical monuments. It was awarded a prize in 1978.

The enlargement encompassed the ground floor and the five upper floors.

Among the new services made possible by the first enlargement were an exhibition area under the ground floor and a media center in the fifth upper floor which is connected to the music library by a spiral staircase.

Important principles for both the library and the architectonic conception were openness and the conveyance of security in overseeable areas, principles which are only apparently contradictory. Oversight is provided by a terraced arrangement of the rooms open to the public. These are connected to each other by a continuous sloping window front. The booths created by the shelf arrangement convey the feeling of "rooms within a room".

Köln - Stadtbücherei, Zentralbibliothek

(New building)

Data:

Name:	Stadtbücherei Köln, Zentralbibliothek
Function:	Academic general library, archive library, district library for the inner city (children's library)
Address:	Josef-Haubrich-Hof 1, 5000 Köln 1
Federal land:	Nordrhein-Westfalen
Population	981,000
Projected holdings:	1 million units with 300,000 in open stacks. Expansion of open-stack holdings to 450,000 units is possible by using the present adult education school area
Architect:	Klaus Encke and Hans-Georg Schmitz, Hochbauamt Köln
Furnishing consultants:	Arbeitsgemeinschaft für Designplanung Jung/Schmidt-Rhen, Düsseldorf and Lindlar Regale Mauser, Waldeck
Usable area:	8700 m^2, with 4650 m^2 for the public circulation area
Building costs:	21.3 million DM (including adult education school)
Building begun/opening:	1975/1979

Comments:

The new building has a central inner-city location across from the new market. Many cultural institutions are in the vicinity.

The building is composed of individual cubes, each with an area of 300 m^2. The public areas are arranged in overseeable squares and are accessible from the center of the building.

The open schowcase facade is intended to make the activities of the library visible. This would have been more effective if the ground floor had been conceived differently. What is seen from the street on this level are the check-out area, the newspaper reading room and offices.

The additional highly specialized offerings include a music library, special collections and four subterranean closed-stack floors. A designer team was responsible for the choice of color, direction system, choice of furnishings and shelf arrangement.

Important impulses are given by the children's library in the basement which was designed by the Cologne sculptor Heinrich Brummack.

Lübeck - Stadtbibliothek, Zentralbibliothek

(Library renovation and expansion)

Data:

Name:	Stadtbibliothek Lübeck, Zentralbibliothek
Function:	Central library, created by merging a public library and the municipal library
Adress:	Hundestraße 5-17, 2400 Lübeck
Federal land:	Schleswig-Holstein
Population:	225,000
Holdings at opening:	500,000 units
Projected holdings:	800,000 units
Architects:	Waldemar Hüsing, Peter Voigt, Hans Wehrhahn, Berlin
Library consultant:	Klaus Bock, Stadtbibliothek
Furnishings:	Schulz, Speyer
Total floor area:	Historical building 1010 m^2, building from 1926 2275 m^2
Total after renovation and expansion:	8615 m^2
Building costs:	8.3 million DM
Planning begun/ Building begun/opening:	1971/1976/1979

Comments:

Although it has been considerably enlarged, the building, which is located in the middle of the Lübeck old city, does not exceed the small scale of its environment. The guiding principle for the architects of the annex was the "Speicher" (storehouse) in the sense of the Hanseatic city tradition.

Decisive for the spacial impression is the patio extending over four stories in the center of the building. The glass/steel construction of the triangular gables establishes a visual bond to the historical environment.

Maximal openness has not been achieved. The library is made accessible to the patron with a system of steps, ramps and elevators.

The division of the levels:

Level 1 (basement)	- closed stacks
Level 2 (ground floor)	- entry, circulation, information, newspaper and discussion room, café, browsing area
Level 3 (first floor)	- children's and young adult library, open stacks for adults
Level 4 (second floor)	- open stacks for adults
Level 5 (third floor)	- media center

Marl - Stadtbibliothek

(Library in a multipurpose building)

Data:

Name:	Stadtbibliothek Marl
Function:	Library as part of the "insel" (educational center with municipal library, adult education school and reading room)
Address:	Bildungswerk der Stadt Marl im Marler Stern 4370 Marl
Federal land:	Nordrhein-Westfalen
Population:	92,000
Holdings at opening:	40,000 units
Projected holdings:	75,000 units
Architects:	Kloss, Kolb + Partner
Concept:	Members of the "insel" and other representatives of the task force "public area"
Furnishings:	Kullmann Org., Basel (reading room); BOMEFA, Kampen (Holland)
Total usable area:	5200 m^2
Usable area, library:	1505 m^2
Usable area, reading room:	680 m^2 (with offices and archive rooms)
Total building costs:	18.5 million DM
Planning begun/ building begun/opening:	1969/1973/1977

Comments:

The "insel" (island) which is included in the Marl "Stern" (star) - a double-rowed, two-storied roofed-over shopping street - has an ideal location. The combination of library and adult evening school in one building lead here for the first time to a joint usage not only of normal areas such as lobby and cloakroom, but also of the "reading room".

This section of the "insel" contains audio-visual media as educational and informational offerings for both library and evening school patrons. A simultaneous availability of pop music for juveniles nevertheless made clear that both could not be housed in the same area. The juveniles "disturbed". The principle of multiple and multipurpose use appears to be overtaxed here.

Paderborn - Stadtbibliothek

(Library in a historical building)

Data:

Name:	Stadtbibliothek Paderborn
Function:	Library of the 2nd level in a secondary school center
Address:	Am Rothoborn, 4790 Paderborn
Federal land:	Nordrhein-Westfalen
Population:	106,000
Holdings at opening:	30,000 units
Projected holdings:	200,000 units (including the holdings of cooperating institutions)
Architect:	Gregor Lucas, Hochbauamt Paderborn
Library consultant:	D. Kranstedt, Paderborn, and Staatliche Fachstelle Detmold
Furnishings:	planmöbel, Espelkamp, and Firma Kreft, Mellendorf bei Hannover
Usable area:	1600 m^2
Building costs:	3.3 million DM, plus 435,000 DM for furnishings
Planning begun/opening:	1972/1977

Comments:

The library is located in the "Ehemalige Domdechanei" (former cathedral dean's residence) which was built between 1676 and 1678 and was the first secular Baroque building in Paderborn. The interior deliberately contrasts with the external appearance. The architect of the reconstruction emphasized the following principles:

> "Contrast between the reconstruction and the historical substance; constructively independent foundation of the interior reconstruction;
> another arrangement of the floors without effecting the appearance of the facade;
> palette-like arrangement of the floors such that the interior space remains as transparent as possible ..."

The transparency of the floors corresponds precisely to modern concepts for libraries. Although the original two stories have been doubled, the usable area is already too small.

Pliezhausen - Mediothek

(Library in a school building)

Data:

Name:	Mediothek Pliezhausen
Function:	Community public library and school library for a school center with elementary and secondary schools
Address:	Schulzentrum, 7401 Pliezhausen
Federal land:	Baden-Württemberg
Population/ area supplied:	6000 (community)/1000 students (school center)
Holdings at opening:	6000 units
Projected holdings:	10,000 units
Architect:	Riehle, Reutlingen
Library consultant:	Staatl. Fachstelle Reutlingen
Furnishings:	EKZ, Reutlingen (AV carrels); Schulz, Speyer
Usable area:	450 m^2
Building costs:	In initial furnishing budget of 675,000 DM
Planning begun/opening:	1974/1978

Comments:

The library is housed on the ground floor of a modern school building.

Notable are the differentiated offerings for both the general public and the school which have been provided an adequate spatial arrangement. The quantity not the substance of the offerings are what make it different from much larger libraries.

Since the zone for school activities can easily be used for public events, the library can also function as a cultural center. The patron use of equipment in the AV carrels (with the exception of the video carrel) has been a success.

Certain conflicts between adults and "loud" youths are unavoidable in a one-room library of this size even with the most meticulous arrangement of zones.

Soltau - Kreis- und Stadtbibliothek (Bibliothek Waldmühle)

(New building)

Data:

Name:	Kreis- und Stadtbücherei Soltau (Bibliothek Waldmühle)
Function:	Library of the 1st level in connection with the mobile library of the county Soltau-Fallingbostel
Address:	Mühlenweg 4, 3040 Soltau
Federal land:	Niedersachsen
Population/ service area:	20,000 (city)/127,000 (county)
Holdings at opening:	34,000 units
Projected holdings:	40,000 units
Architect:	Beier + Partner, Architects and engineers Dipl.-Ing. Beier, Pook, Saalmann, Braunschweig
Library consultant:	R. Danker, Soltau
Shelving system:	EKZ, Reutlingen
Usable area:	954 m^2
Building costs:	1.8 million DM, including 140,000 DM for furnishings
Opening:	1977

Comments:

The building was erected on a park-like site on the banks of a little river which is centrally located to the schools. The structure, which was awarded the "Niedersachsen Architect's Prize for the most beautiful wooden building" in 1978, was conceived so that future expansions would be possible. The accentuated harmony of interior and landscape reminds one of Danish examples.

The open interior is arranged into several levels. From the entry level one goes up to the adult department; a few steps lead down to the children's department.

A special feature is the forum which satisfies the current desire for (direct) communication and thereby corresponds to Mevissen's ideal of the "market place". Reading, listening and playing is possible here, as is a differentiated program of events having a diversity of technical demands.

Villingen-Schwenningen - Stadtbibliothek, Zentralbibliothek

(New building)

Data:

Name:	Stadtbibliothek Villingen-Schwenningen
Function:	Central library and country supplementary library
Address:	Muslenplatz, 7220 Schwenningen
Federal land:	Baden-Württemberg
Population:	80,000 (total of both city districts)
Holdings at opening:	45,000 units
Projected holdings:	65,000 units
Architect team:	ASPLAN, Architektur und Stadtplanung, Stuttgart; Maier + Maier, Freie Architekten, VS-Schwenningen
Furnishings:	EKZ, Reutlingen
Usable area:	2100 m^2
Building costs:	8.5 million DM for the entire project with stores and café; about 6 million DM for the library
Planning begun/ building begun/opening:	1976/1978/1980

Comments:

The building was constructed in conjunction with a comprehensive project for inner-city redevelopment. A few shops and a café are also located in the same building. A new square was created in front of the building thus establishing a connection to the pedestrian zone.

Noteworthy is the wooden construction which gives the interior its unique character. The shelf arrangement makes this library a prototype of the open house.

The privately-run café is located such that it functions as a newspaper café. The lecture hall is located near the entry, newspaper zone and café.

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The Influence of conventional technologies on library planning and construction

by

Robert K. JOPP (Stuttgart, FRG)

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Robert K. Jopp

The influence of conventional technologies on library planning and construction

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Buildings - and I will be talking about library buildings - have normally to protect from influences of heat, cold, water, noises. They have to protect people who are working or staying within these buildings, or books being stored there. To say it in other words: Library buildings should provide for most appropriate conditions for the stay and for the activities of readers and librarians, as well as for storing, treatment and use of books and other media.

Of course, we have to ask: Which are those most appropriate conditions? Are the same conditions appropriate to the same degree for books as well as for people? And: Are the same conditions appropriate for all people? And after having found answers to these questions we have to continue to ask, by which means we could accomplish the mentioned conditions, and are the technical means we have used till now the best ones, and will they work in the future too, under influences which we perhaps are unable to see before; have we to look out for other solutions, that will have a more or less considerable impact on the organization of the libraries as well as on the architectonical appearance of our buildings?

I should like to make a few remarks about these problems in my lecture. I should likewise like to advocate energically that we should try to get ideas how our library buildings will look in the future, when there will be fewer sources of conventional energy to make them running, but on the other hand we should be able to make a better use of the energy of the sun, which we get at a rather low price.

The purposes mentioned before can firstly be reached by the construction of the building with its constant properties as heat protection and noise insulation, but on the other hand, too, by the installations and plants serving for the regulation of heat, cold, humidity and lighting.

All this should be done in the most economic way. That means: The chosen construction and technical equipment should work as long as possible and as efficient as possible. The resulting maintenance

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and running costs for building and equipment should remain as low as possible and as calculable in their progress as possible. Moreover, in the last time conscience has grown for a more economic use of primary energy not only under the viewpoint of grown expenses, but also under the viewpoint of an expected exhausting of world energy stocks. Thus, in my opinion we should have to focus our attention on measures to save energy in construction, technical equipment and running, as well as on the impact of these measures on the planning and particularly on the organization of library buildings.

The requirements of the librarians concerning new library buildings have to be co-ordinated with the technical and financial restraints and those imposed by the building and security regulations. Planners and users ought to begin their co-operation as early as possible; this appears to be necessary specially in the Federal Republic for the university and research libraries, because planners and users belong to different ministries. This really fatal construction is leading again and again to controversies on the backs of the architects and the librarians and finally to serious disadvantages for the users.

An early co-operation between architects and librarians is really necessary in view of the building and running costs. In this concern I permit to quote from a paper worked out by the working committee 'Standardization' of the Laender Co-operative for Public Building: "While costs increase constantly in the course of planning, building and using of a building, the possibilities to influence the costs by planning decrease. This means that the essential and key decisions concerning construction and running costs have to be made in the early planning stages."

It appears to be raltively easy to co-ordinate the technical constraints with the ideas and the requirements of the librarians, but it is definitely much more difficult to apply in existing buildings the measures for saving energy in construction, technical equipment and in running, which are recommended or even compulsory.

A significant change in the conception of buildings can be seen under the influence of the before mentioned measures for saving energy, codified in the Federal Republic by the Law concerning the Saving of Energy (Energieeinsparungsgesetz), the Decree concerning Heat Insulation (Waermeschutzverordnung), as well as by some additional regulations.

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Let me mention some viewpoints concerning the form and the position of the building, which have won - again - importance:

- compact lay-out of the building, in order to reduce heat losses
- creation of a fevorable micro-climate by better integration of green overgrowing of the building itself, the site and its surroundings
- orientation of the building and its openings in view of a better passive use of sun irradiation.

The function of heavy construction masses as heat storage has been brought to mind again and the relation between closed outside wall faces and window openings is changing in favour of smaller windows. The outside walls are growing heavier, because the problems of heat insulation - limitation of the admitted heat transfer to 1,5 W/m^2K - heat storage and sound protection can better be resolved and with minor expenditure for technical equipment in order to create an appropriate room climate. The remaining window openings - Kroller recommends a maximum of 25% of the outside wall - can be used as heat traps, being equipped with venitian blinds and sun protection glasses.

A more extended use of sun irradiation is the glass/greenhouse conception. In winter the irradiation can enter through the glass and the heat is caught by thick walls, which are behind the glass and have a dark surface; the heat is given by radiation to the interior of the house. In summer, the space between the glass and the wall works - shaded by venitian blinds - as a protection of the building against irradiation and heating up. Green plants in the space between glass and wall are working in addition as a regulation of the air humidity inside the building.

More massive construction means, caused by enlargement of the cross sections of the structural elements, a diminution of the available usable area in relation to the gross area and a restrain to the flexibility of use of the plot area. These conditions will necessarily lead to considerations concerning the organization, which could perhaps mean a reduction of the distance of the book shelves and/or a reduction of the relative area of the reading place.

You can mainly regulate passively the heat balance of the building and the climatic conditions of the rooms by the construction and the architecture, too, of the building, as for example the orientation

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of the building, protection against sun irradiation, reasonable dimensions of the layers of heat insulation, reasonable dimensions of window openings and the utilization of the capability of the construction to store heat. On the contrary, the installations and the equipment for heating, ventilation and air-conditioning have to regulate actively the climatic conditions of the rooms. This is intended to create conditions which should be most appropriate for the users and the librarians, as well as for the utilization and the preserving of the books.

In the german norm DIN 4701 and, according to this, in the Regulations for Working Rooms(Arbeitsstättenrichtlinien), the required temperature for rooms in which librarians are working is indicated to be 20°C. Juckel confirms that air-conditioned rooms need 22°C, because the movement of the blown-in and exhausted air causes cooling. The most appropriate relative humidity of the air in working rooms is indicated to be 40 - 45 %. The most favorable temperature range for book stores is indicated by Fischer and also by Livingstone to be 18 - 21°C, but it is said that a reduction of the temperature in the store down to 10°C is really more favorable for the preservation of books. The Regulations for Working Rooms indicate only 17°C as the required temperature for non-sitting activities. The relative humidity of the air in book stores should be - according to the same sources - 45 - 50 %.

Thus, already under legal and normative aspects, two different climatic ranges should be distinguished in a library building: In the book store the climate should be as constant as possible, but as far as the rooms for both users and librarians are concerned, new answers should be found on the question whether air-conditioning in these rooms is really necessary. In this concern I will later be making some remarks.

For the decisions to be made concerning the system and the dimensions of the heating plant, the quantity of heat should be included which origins from the use and the running of the building. In library buildings in particular waste heat from lighting, heat radiation from the persons in the building, but also irradiation of sun heat has to be taken in account. Heat recovery from outgoing air has to be respected in the heat balance, too.

For the heating of library buildings different functional viewpoints have to be taken in consideration. In buildings with air-conditioning

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plants the heating plant has only to guarantee a basic temperature of about 8 - 10°C in the periods, when the air-conditioning plant is out of service. Should the required room temperatures be reached only by heating, it is important to consider the different ways of yielding the heat by radiators and by convectors. Radiators give the heat off by radiation and by convection, whilst convectors do it only by convection. Heaters have their best position below the windows in order to prevent cold air streams to fall down to the floor. Convectors can be installed under floor in an open channel covered by a lattice. Of course, this lattice should be kept free of furniture. Heaters in small or single working rooms should have a variable thermostate valve, because the room temperature can be individually programmed, also to save energy. In public rooms there is a permanent danger of abuse of the thermostate valves, so that in these rooms the heaters better work in groups, each group getting only one common variable thermostate valve, which is accessible only for the library staff. The best way to control room temperatures in vast rooms, as for example lecture halls, is by outside/inside thermostates.

Both radiators and specially convectors use to be run with relatively elevated feeding temperatures, that is up to 90°C, which leads inevitably to heat losses during the flow of the heating water from the boiler - or, in the case of district heating, from the transfer point - to the heater. The working group 'Standardization' of the Laender Co-operative for Public Building has recommended a reduction of the feeding temperature down to 60°C, in order to reduce heat losses and to make it possible to change over later to the use of heat pumps, which means a very important reduction of energy input. However, the reduction of the feeding temperature to 60°C demands an enlarging of the heating surface by 100 %. An advantage can be the use of a floor heating in combination with a heat pump, because this system does not cause considerable restrictions concerning the position of book shelves and other furniture. This system is called low temperature heating, because the feeding temperature can be as 40°C.

The principle of the heat pump is like that of the refrigerator: Heat is collected by a medium from the soil, the ground water or the air; the medium then is compressed and yields in the following stage the heat energy, by means of a heat exchanger, to the heating

circuit which is feeding the heaters. The collecting of the heat takes place by thin tubes in the soil or by absorbers forming so-called energy-fences, energy-roofs, energy-walls or energy-piles.

With a heat pump it is possible to save more than 50 % primary energy, compared to conventional boiler plants. Heat pumps used to cover the basic power need, and sharing 30 to 50 % of the installed total capacity are capable to yield more than 60 % of the total heat consumption.

Air-conditioning plants have to influence actively the climate of the spaces in which the readers are using books, the librarians are working, and in which books are stored. Some of the rooms, like magazines, should have constant conditions of temperature and humidity, but others may remain in close relation to the climatic conditions outside the building, without remarkable disadvantages for the people staying and working in them.

The simplest way to regulate the climate in working rooms is by sun protections inside or outside and by ventilation through open windows. Nevertheless, air-conditioning plants can be found in a number of cases, where it is really not necessary. Air-conditioning plants need a lot of energy. The necessity of such a plant should well be thought over and it should be used only in those cases, where sufficient supply of outside air cannot be guaranteed by other means.

Following an expertise of a Stuttgart planner's office (Hoefler/Kandel) worked out for the Federal Government and concerning library building, the renunciation of an air-conditioning plant at all can lead to economizing investment cost up to about 20 % and of running costs up to 19 to 22 %, an essential portion of the running costs being for energy. On the other hand, the before mentioned request to rise the temperature in air-conditioned rooms from 20°to 22°C causes an immediate rising of the running costs.

Air-conditioning plants need considerable constructive measures. The installation of the horizontal ducts under the ceiling takes a lot of space, which can be balanced only by rising the floor height. Vertical ducts have to be installed in separated shafts, because of the required fire protection, and they have to be separated from the horizontal ducts by rather expensive fire hatches.

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The result of the intention to observe so-called optimum values for temperature and humidity were in the past rather genrously dimensioned plants with considerable energy consumption and really exploding running costs. Only late the planners of the air-conditioning plants have seen, that the well-being of people depends less from a constant climate, but, contrarily, from the most different and not standardizeable individual conditions and influences, as well as from the much changing influences of season and weather. The temptative to equalize these influences can lead frequently to chronic or even acute diseased states.

If a library building should get air-conditioning, there should be the possibility to run the plant in a differenciated way, following the different needs of the rooms, which means, that parts of the plant can be switched off. Consequently, a number of smaller plants could be installed instead of a bigger, central one, as for example in the new Duesseldorf University Library.

Both dimension and running depend directly from the air change rates the calculation is based upon, in relation to the occupancy of the different rooms in the library. For the dimensioning of the plant it is certainly important, whether the calculation is based on average air change rates and a maximum occupancy, or on lower air change rates and average occupancy - this consideration being based on the respective regulations.

The renunciation of air-conditioning plants at all - certainly with the exception for rooms inmidst of the building or underground, like magazines, for which air-conditioning is absolutely necessary - would have important consequences on the lay-out and the organization of library buildings. It would be no more possible to choose almost freely the depth of rooms, as we used to do in the past; the depth of the rooms has to be limited so that sufficient natural ventilation can be guaranteed. In our country the Regulations for Working Rooms can be a certain orientation as to ventilation and lighting.
One of the new examples for library buildings without air-conditioning is the new library building for the Polytechnical School Kassel.

With a reduction of the building depth, of course, the part of the plot would diminish, where supplementary artificial lighting is necessary. Following the data given by the working group 'Technical Equipment' of the Laender Co-operative for Public Building, the energy consumption for lighting is running up to 75 kWh/m^2·usable area and year, but

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this is only one forth of the energy which is necessary for heating. However, it appears to be worthwhile to think about possibilities of saving energy; the consequences on the library organization and the building will remain limited. There is a long discussion about the most appropriate way of lighting libraries - whether only general lighting, general lighting orientated to working places or reduced general lighting in combination with particular lighting of the working places - which has not yet come to an end. Final certainty is lacking, too, as to the really necessary illumination intensity, despite several - of course differing - normative regulations. Only one remark, independent from the question of the most favorable illumination intensity: The height of lamps above the table in relation to the installed lighting load is essential for the luminous efficiency; to get a nominal intensity of illumination of 300 lx at a lamp height of 3.o m you have to wire 17-W/m^2, but at a lamp height of 4,o m you have to wire 19 W/m^2.

To sum up: The fast rise of oil prices made us think about the way we are handling energy. The first consequences of these reflexions are

- legal regulations to save energy
- efforts from many sides - often accompanied by premature euphoria - to find alternatives to the wellknown sources of energy, and
- considerations how to use energy in a better directed and economic way for example in the construction and in the use of buildings

In the future our library buildings will be looking different. Thicker walls with smaller windows or also second glass skins will mark the aspect of the buildings. The inner organization will be determined by systems and methods to regulate the climate of the rooms, which will need much less technical installations. As a consequence, the organization of the libraries will change.

Let us hope that we will succeed in making the best out of the situation and in ameliorating finally the conditions for reading and working!

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INTERNATIONAL FEDERATION OF LIBRARY ASSOCIATIONS

Standing Committee on Library Buildings and Equipment

Munich, August 24, 1983

Whither the Book? Considerations for Library Planning in the Age of Electronics

by

Roscoe Rouse, Jr., Ph.D.
University Librarian
Oklahoma State University
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We live in a very stimulating time for professional librarians. You can be glad or you can be sad for it. If you are of an adventurous nature, you are enjoying your job; if you prefar the quiet soberness of the stereotyped library of yore, you are a square peg in a round hole. One cannot simply drift with the tide in today's exciting information business, and that is what it is today: the information business and no day is the same as the day before.

With the rapid thrust of the book-orientated library into a space age milieu come many, many problems, only one of which is the design of a library building which will accommodate the new technologies in an adequate fashion. The changes we see moving in upon us brought on by new developments in laser technology, miniaturization, satellite transmission, computer progress, electronic databases certainly do change the manner in which we carry out our work as librarians and will have an effect upon building design but they do not change the purpose, the raison d'etre of libraries. Goals will be reached through different means than before and the buildings which house these functions will be planned differently than before.

How different will the plans be? To what extent will the new technologies affect library planning? This paper will doubtless provide no absolute and undebatable answers to those questions. We hope to present here evidence that should be given consideration when planning libraries for the future. In a sense, we are setting out to prove that library planning had best set for itself a new course. Too many of us who devise plans for library buildings that last a century fail to try to imagine what libraries will be like throughout that century. Of course it is impossible to know exactly but there are signs today that were not there, say, thirty years ago. Today we can see trends which should properly frighten us into studying every facet of the future of the book as we know it today.

This is not to suggest that we should take as our script such fantasies as Star Wars, Buck Rogers or Star Trek but I wonder if that level of thinking might be better than just planning a library the same way we planned it thirty years ago.

The permanence or impermanence of library materials, i.e., books, journals, microfilm, is a key factor in the matter under discussion today. It cannot be called the most important factor because, if technology so dictates, the contents of paper printed materials would find its way to machine-readable text, regardless of the durability of paper and books. It is an important consideration because, obviously, those who would attempt to preserve books must assuredly believe that book libraries will be around for another century, at least. And there is considerable interest in preserving the book.

The gravity of the matter of book and paper longevity is borne out in the literature. The Council on Library Resources in New York

made a survey of U.S. book publishers through its Committee on Production Guidelines for Book Longevity and learned that nearly two-thirds of a relatively small number of respondents use acid-free paper for some or all of their books.[1] Of the small number responding to the survey, 72 out of 111 already use acid-free sheets for at least some of their books. CLR is making an effort to influence publishers to use long-lived paper through their study of the matter, the use of surveys and other means.

The American Library Association has approved the formation in recent years of committees and sections concerned with book and paper preservation, some of which are now active in conducting programs on these issues at national conferences. At the annual conference of ALA in Los Angeles in June of this year, the Buildings and Equipment Section presented a program titled "Optimum Library Environment for Books and People: How to Achieve It." The purpose of the program was to present various means utilized in the construction and renovation of library buildings to control the environment in which library materials are placed so that their life will be extended. Speakers included three architects who had either planned the construction of a new facility or renovated an older facility, in each case designing buildings which incorporated the latest techniques for the preservation of materials, and a paper conservationist. Areas of concern included architectural considerations which would prolong the life of materials, as, for example, covering large pane glass windows with a material which serves to screen out ultraviolet rays which are harmful to paper and film.

A hand-out at the ALA BES program was an extract from the "RLG Preservation Manual," December 1982 draft. The paper bears

the title "Environmental Control for Library Collections," issued by the Research Libraries Group. In the paper one finds such detailed requirements for microforms and paper as temperature, relative humidity, air movement, protection from light, fire and water, and other warnings.

The Public Libraries Division of the American Library Association has a unit titled Preservation of Library Materials Section. This unit joined with the Buildings and Equipment Section to sponsor the program described above.

In the Association of Research Libraries there is a Preservation Planning Program, a new preservation microfilming component of the ARL Microform Project, and programs presenting preservation techniques which are currently available. The interest in these programs and activities attest to the importance of preservation issues to the ARL membership. The Association of Research Libraries Five Year Plan has as its number three objective the following: "To increase the number of member libraries engaged in programs to preserve their collections."

Another major effort in the perservation arena is the receipt of a $1,350,000 grant by the Research Libraries Group (RLG) from the National Endowment for the Humanities and the Andrew W. Mellon Foundation for a cooperative microfilming project in which seven RLG libraries will participate. The project focuses on monographs, U.S. imprints and Americana published between 1876 and 1900. Most of these publications appeared initially on highly acidic paper.

On April 29 of this year the Library of Congress presented a program titled "Library Preservation: the Administrative Challenge."

Sixteen speakers outlined the preservation priorities facing research libraries and suggested specific management approaches for incorporating preservation into library organization and operations.

The Library of Congress has recently produced a 51-minute videotape which provides information on paper-making processes, the problems of deterioration, solutions through mass deacidification and the experiment for deacidification of 5,000 books at the Goddard Spaceflight Center and on-going pilot projects to use laser optical disk technology for preservation and resource access. Copies of the film are available for loan through the National Preservation Program Office at the Library of Congress or may be purchased for $75.

The American National Standards Committee Z-39, Library and Information Sciences and Related Publishing Practices, has issued the draft of a paper on "Permanent Paper for Library Materials." The paper describes the need for a standard which will establish the criteria for permanent uncoated paper, that is, paper which will last at least several hundred years without significant deterioration under normal library use and optimal storage conditions. Actual observations and laboratory test results show that paper meeting the standards for pH and alkaline reserve described in the draft will survive as the paper made in the 14th and 15th centuries has survived to the present.

All the efforts and programs described here to preserve today's library materials, whether paper or film format, imply that librarians are striving for assurance that the codex will be extant for many, many years--even centuries. There appears to be no capitulation on their part to the possible supremacy and inevitability of machine-readable textual material and its replacement of the hand-held bound book. Nonetheless, librarians are moving forward unrelentingly

in their search for faster, more comprehensive and less laborious information dissemination techniques and through modern technology they have been successful in finding it. Database searches involving Boolean logic are commonplace. Some publishers now issue in machine-readable format the publications they once issued as traditional books or journals. Whether this process will be adopted on a wide enough scale to virtually remove books as the most common tool in the library and thereby seriously influence library construction, is not yet known, but these are "straws in the wind."

Despite phenomenal scientific advancement in all areas of our civilization over the past one hundred years, no changes have been made in the climates in which we dwell, the environments which definitely influence the way we build libraries. There has been, in fact, only a degradation in the quality of the air because we are dispersing into it large quantities of pollutants on a daily basis. We have the same destructive storms that we had one hundred years ago--hurricanes, floods, tornadoes, typhoons--the same heat and drought, the same enemy of paper--humidity--that was experienced a century ago. Man has not been able to diminish these powers in the slightest. We are even plagued by the same destructive vermin that were enemies of libraries one hundred years ago--silverfish, termites, bookworms and the like. It is very probable that one hundred years from now the very same climatic conditions will exist and the same vermin will be with us. As our French comrades say, "Plus ça change, plus c'est la même chose."

The spring 1983 meeting of the Association of Research Libraries held in Banff, Alberta, Canada carried the theme "Research Libraries in the Online Environment." The conference has been termed "a blend of practical information and speculation on the impact of the

online environment on research libraries and the issues that will have to be faced in the future." As a member in attendance I found the presentations relevant, intriguing, challenging, and even somewhat intimidating.

Among the topics discussed which portend change of vast proportions in our libraries and in the planning of our buildings, were alternatives currently available for communicating data: satellites, broadcast cable, fiber optics. Several trends were noted toward increasing miniaturization, higher speed transmission at lower cost, dense off-line storage at lower cost, increasing potential for decentralization of creation of and access to data, and continuing shifts in the relative cost advantages of choices of technologies. One presentation dealt with the rapid and relatively inexpensive sharing of data by libraries, information transfer and various networking configurations, including utility-based networks (e.g., cable for audiovisual and textual service, electronic mail/messaging services, document delivery) and multi-purpose networks that combine functions such as word processing, database searching and manipulation, and gateway--or intelligent network--services that provide access to online data in different formats.

The Five-Year Plan drafted by the Association of Research Libraries last April includes a statement to the effect that "the mission of the Association is to strengthen and extend the capacities of its member libraries to provide access to recorded knowledge...[and] to make scholarly communication more effective."[2] The document makes reference to "changes in publishing patterns, in communications and data storage technologies." It is noted that the Association wishes to have these changes "tracked and their effect on research library service... analyzed and thoroughly understood." An example of the actions ARL might take in this regard was, as stated in the

paper "an examination of alternative ways for libraries and universities to identify, acquire and provide access to electronic publications when they become generally available in the next few years."

Michael Gorman wrote in 1982 "my unequivocal prediction is that by the end of the decade, the majority of American libraries of all kinds will be involved in, or affected in a major way by, online catalog systems, i.e., most libraries will allow direct access by means of computer terminals to detailed bibliographic and status information about their collections."[3] Gorman continues in the opinion that some librarians believe "that the online catalog will not arrive or, if it does arrive, will constitute a relatively minor technological change. The latter school believes that the change to an online catalog is comparable with the significant-in-the-short-term but ultimately-trivial change from a card to a microform catalog. Such a view is profoundly mistaken. The online catalog will be at once the greatest symbol of change, the greatest instrument of change, and the greatest result of the revolution in libraries of these latter years... Online catalog databases will reflect the holdings of a number of libraries. Electronic union catalogs will transcend the limitations of library physical plants and the parochialism those limitations have fostered." Mr. Gorman continues with the premise that online catalogs will materially affect many aspects of library operations, and he names specifically reference, bibliographic instruction, organization and management, resource sharing, and of course technical processing. Each of these will in turn have an effect upon the finances of the library, says Mr. Gorman. I will take his premise further and project that a domino effect will be felt throughout the library including space utilization.

Alfred Bork of the University of California at Irvine authored

an article titled "Books versus Computers-Learning Media" which was published in the Proceedings of the 43rd ASIS Annual Meeting, 1980.[4] Mr. Bork contends that the new technology will displace, at least to some degree, the book as we know it today as a learning tool. " e book is the dominant delivery mechanism for learning today without question. Even where other modes such as lectures are important, in schools and universities, the book is still the most important learning mode. If we leave these formal institutions and look at the bulk of the students' learning, books constitute the major tool available. Remember that the book is a relatively recent learning device, considered against man's history; it is only within the past 500 years that books were possible and only in about half that time that books were widely used in the learning process... but now there is a challenger, the computer. The computer, while very little used in learning environments at the present time, shows great potential particularly in dealing with just the two problems raised. The contention of this paper is that we are on the verge of a major change in the way people learn... I intend to present the evidence that such a change is about to occur." Mr. Bork explained that one of the major advantages of the book is familiarity and pointed out that during the first year of experiments which he conducted, students were offered a choice between computer and non-computer approaches to a beginning physics course. He said three-quarters of the students selected the non-computer approach. "This number has changed in each of the years we have offered it," said Mr. Bork. "Now three years later the percentages have reversed with three-fourths of the people picking the computer approach."

The author points out some computer advantages including that of interactivity and individualization. The learning process can be an active experience for every individual, with the computer

engaging in a conversation with the student, constantly asking the student to respond, to do something, to play an active role in the learning process. He said this is to be contrasted with books which, for many readers, are very passive learning devices. As regards costs, Mr. Bork pointed out the relatively lesser cost of printed materials at the present time but he points out the rate at which they are increasing and the trend toward lower costs for computer equipment and software. He said, "the future is with the computer."

The author's final comments point out the role that both the computer and the book can play in the learning process. He is of the opinion that both will continue to be used. "A likely scenario for the future is that books and computers will both be used often together, but it should be clear from my comments that the relative advantages of computers in mass education will become more and more apparent. The problems of mass education and the problems of different backgrounds will be more and more met by the computer rather than by the book. So we will see over twenty-five years, a transition from one dominant learning medium to another dominant learning medium, a transition that does not occur often in human history."

Six years ago a publication was issued which purported to tell us something about libraries in the 21st century. Edited by Herbert Poole, the book is titled Academic Libraries by the Year 2000; Essays Honoring Jerrold Orne.[5] It is my opinion that the book is, largely, a disappointment if one reads it through to gain a feeling of the setting in which academic libraries will be found in the year 2000. One writer in the volume, Virgil Massman, discussed an interesting document issued by the U.S. National Commission on Libraries and Information Science ad hoc subcommittee on the Probable Impact on Economic and Technological Trends. Among some very stimulating

ideas to come from this committee is the "synoptic" journal, he said, where full text will be delivered on demand. Indeed, at the present time a page of text can be transmitted in six minutes or less by telecopier on commercial telephone-connected equipment. As the band width is expanded, it may be feasible to send a page of text, not only cross-country, but around the world in fractions of seconds and at a low cost. Mr. Massman speaks of the buildings of the future to a limited extent, noting that there will be continuing efforts to limit the size of libraries.

The Deputy Librarian of Congress, William J. Welsh, wrote in that book of the potential offered in future years of the refinement of the technology for libraries. He tells us about reading from the television screen at home, about optical storage now being less expensive than magnetic tape in large-scale, read-only applications, television transmission from microformats (a reality in some banks at present), and microfiche documents stored locally or moved by satellite transmission. Now we are facing the reality of the existence of these technologies and they are significant developments with which we, as librarians and library building planners, must deal in the very near future if not at present.

Electronic publishing is a catchy phrase. It is a stimulating idea which excites the sporting blood in us. Those who like a challenge, who wish to conquer new frontiers, will find hope in this new technology. It is proof that the life of a librarian can be adventurous, exciting, uncommonplace. But one must be free of "future-phobia" and anticipate years of exciting possibilities ahead to venture into this strange new world.

We are not talking about things to be, inventions in the development stage. We have with us today disk-like communication

media that yield moving pictures as well as sounds, television screens and instantaneous information sources whereas we once sought out a reference book. Even Roger Tory Peterson's avian knowledge and his proven popularity with bird watchers is in the process of electronic publication through Houghton Mifflin. Random House is publishing software to be used in the Radio Shack computers which they distribute to educational institutions.[6]

Computer type-setting has been around for more than 20 years but it has matured sufficiently to allow the Academic American Encyclopedia in its 21 volumes to be composed on the computer and appear in machine-readable form. Released in 1980, the encyclopedia can be accessed online through OCLC, Inc. and other databases. We have other examples, of course, including Bowker's Books in Print out of which have arisen twenty publications of other sorts.

A survey of electronic publishing would be immediately out of date because it is impossible to cite all projects in progress at any one time. The field is highly volatile and is moving at a rapid pace around the world.

Harper and Row has plans for a database in sixty different industries whereby directories will be published by geographical area, all industries for instance, in Japan or Germany or England.

"Like many other publishers, we're looking at the ways we can distribute our data by non-traditional means," says David Weaver, Vice-President at McGraw-Hill, a company which has developed films and video cassettes for training programs in data processing and management.

Educators are embracing the machines warmly enough to encourage

Scholastic Incorporated--which calls itself "the nation's largest publisher of educational periodicals for students in grades K - 12"--to start up a new magazine, Electronic Learning. Scholastic estimates that educational hardware will be a one billion dollar business within the decade.

A report on the two-day conference on "The Print Publisher in an Electronic World" held in December of 1980 in New York notes that the conference drew more than 300 executives from publishing companies as well as from industries concerned with telecommunications, advertising, research, government and education.[7] They came hungry for hints on how to profit from the new technology, the report said, "and from the outset the strategy for book publishers seemed clear. Publishers have the information software and in the years to come, sports and cultural events and movies won't suffice to keep the electronic media supplied with material so publishers' wares will be in demand." One speaker, Michael Dann, referred his listeners to Alvin Toffler's The Third Wave for an analysis of the new era we are entering and to caution them that the electronic revolution of the eighties involves major changes in lifestyle. "What's happening now," in Dan's view," is lots bigger than whether the book will remain in its present form." People are changing not only the way they get things but also what they want to get. Mr. Dann said that in his opinion the average family in the United States will spend $1,000 a month or more on electronic gear and programming for the home by the mid-1980's. (As a member of what I think is the average U.S. family, I do not agree with Mr. Dann in the high dollar figure he chooses to use.)

The Reader's Digest Association has acquired a commercial database retrieval service called The Source. The database offers all manner of factual material: United Press International Files,

more than 4,000 extracts from the New York Times Consumer Database, employment openings registered with Career Network, restaurant guides, etc. The Source has attracted some 9,000 subscribers so far and some forecasters expect this number to be around 20,000 in the near future. Each pays a $100 one-time membership fee and the charge thereafter is $15 per hour for use of the system from 7 a.m. to 6 p.m. Monday through Friday and $4.25 an hour at all other times and holidays. It is possible to access The Source from any computer, no matter how dumb, a company representative says. It is available in 230 metropolitan areas through a local telephone call.

The Source is one example of the means by which our registered library users will seek information as the glamor and excitement of information retrieved via such unique means catches on and surely as it becomes reduced in cost through volume use.

In 1981 The Drexel Library Quarterly devoted its fall issue to considerations of electronic delivery of information, giving that publication the title "The Electronic Library."[8] Edited by Mr. Kenneth Dowlin, Director of the Pike's Peak Library District in Colorado Springs, Colorado, the publication includes contributions by noted individuals writing on the computer and what it can do (Joseph R. Matthews), electronic delivery of information (Richard T. Sweeney), future information delivery systems (Brigitt Kenney), Networking and the Electronic Library (Neal Kaske and Nancy Sanders). Some quotations from this publication point up the opinion held by some that electronics will dominate our libraries sooner than we think:

> "We live in an ever-changing world and in order to thrive and even exist we must change with it. The field of library and information

service is no stagnant backwater in our society. It promises to be a driving force as we move to the post-industrial age." (Kenneth Dowling).

"Today we are continuously being exposed to the marvels of a variety of new technologies... Video disks, two-way interactive cable television, satellite television, electronic mail, personal computers, word processors, fiber optics, computer-based telephones, and teleconferencing are among the technologies being discussed." (Joseph R. Matthews)

"Business Week in June 1981 predicted that 8,000,000 U.S. homes will be linked with computer data banks by 1990... American Express predicted that 8,000,000 U.S. households will be using home terminals by 1985, five years earlier than Business Week predicted... Clearly, industry is preparing for the spread of the home terminal information-retrieval systems and the public library must do likewise." (Richard T. Sweeney)

"Electronic publishing which will produce information only in digital formats, will perhaps be one of the most heavily felt influences in the library's role in storing and retrieving information. If journals, technical reports, patents and the like are available in electronic form only, how will libraries store this material? Or will they? Perhaps they will only provide access to remote databases containing such material. Two encyclopedias have already been made available in electronic form; handbooks and other reference works are sure to follow. This can mean that libraries would either have to have their own large electronic storage and retrieval facility or would need to be tied to regional or national "electronic reference centers" where librarians and clients could search the desired database... Libraries will cease to be places and instead will be organizations of people, working at home much of the time, and providing the expertise necessary to help users with the confusing variety of differing and competing technologies, and with searching and retrieving the many electronic data stores throughout the U.S., and, eventually, the world." (Brigitt L. Kenney)

In a telephone conversation with Mr. Dowlin last month, he was asked to describe the library building which he would plan to serve clientele fifty years from today. His first response was that the building must be flexible as great change will come within that fifty-year period. He had no doubt but what the book as we know it today will still be here but in a smaller number. He calls it the best "knowledge instrument" known at this time but cautioned that because it takes two years to create a book, much information will be needed before it can be published in book format. Reference tools will need to be transposed into machine-readable data first and that is now taking place. Periodicals will be early among the types of materials offered in machine-readable format, especially in scientific fields. Mr. Dowlin calls for a building with "tons of power" as, he notes, we have always outstripped the power supply in the buildings we plan.

Mr. Dowlin remarked on the service patterns of library buildings and the way they fluctuate through the years. He commented on a 1957 building which he occupied with a total of 86,000 square feet and only 2 offices. He said there is a great need for more office space because of the change in job assignments which have taken place over the years. He points out the need to move from communal space to private work space, although that work space need not be enclosed by walls.

Dowlin sees a need to provide power and communication cables through drop ceilings and "power poles" rather than through floors or walls. His experiment with a "raceway" was not successful. He asks for a service tower from the basement to the roof with power and communication lines housed therein. Cables could be taken from the tower and run through any ceiling within the building.

In years past Mr. Dowlin worked with a "core" which served the building for housing personnel, stairways, and utilitarian purposes. His future building, he says, will not utilize the core in the center of the building since it can get in the way and all movement must be around the core.

Asked whether he would predict that most of the book collection would be stored away in a less accessible area of the building, his response was negative, noting the fact that he directs a regional-public library rather than a research library. He would still ask for shelves and browsing areas in his building. The library director noted that with the cost of books going up and the cost of electronic access to information coming down, it is inevitable that we will see fewer books added to our collections and more electronic software purchased in the future.

In another direct telephone inquiry made last month it was learned that Encyclopedia Brittanica is producing software packages of programs in areas of mathematical science, language arts, special education, living skills and vocational education. This data can be accessed on home or school computers. I was told that Encyclopedia Brittanica has no plans at present to put its entire publication online.

I should be interested in hearing about the outcome of the experiment conducted in the 1970's by the British Post Office with Project Viewdata, a telephone information service. Subscribers call to request a display of specific information on their home television sets. Then, by sequentially pressing buttons on a key pad, they can gradually narrow their choice of subjects and topics to receive one page out of a million.

It seems evident that numerous innovations are yet on the drawing boards and there will be challenges untold ahead of us. Unquestionably, the profession must look to the future with the hope that a new generation of "mixed technology specialists" will be prepared to carry on library service traditions.

Educational Facilities Laboratory was founded in New York in 1958 by the Ford Foundation for the purpose of conducting research and experiments in educational facilities. In the late 1960's, E.F.L. called together a group of people knowledgeable in higher education, in academic library management and in architecture. They were asked to consider whether, at that point in time, academic library planning was meeting the challenge that the future might hold for academic institutions. The question put to the gathering was: should library buildings of the future be designed primarily for the printed book? A week later the group submitted its report to the organization's president. They had reached the conclusion that academic library planners were, for the most part, projecting their thinking into the future and that, indeed, the codex book will be the mainstay for library building planning for the foreseeable future. That meeting was held about fifteen years ago. In view of the changes in information transfer technology over that fifteen-year period, were I in a position to do so, I would call for another such conference and ask the same question again. The factors with which the participants would work today would, indeed, be quite different from those of 1968.

Considering the large number of libraries which have already installed computer equipment, it hardly seems necessary for us to discourse on site preparation, specifications and plans for such equipment. This is part and parcel of library planning today, without question, or at least I certainly hope it is. There are numerous

places where one can find this kind of information in today's library planning literature and it will not be explored here today.

TALMIS is the acronym for Technology-Assisted Learning Market Information Service, an organization concerned with the use of microcomputer software and interactive video materials for training and education. In 1980 the organization held a conference in Chicago called "Interfacing Industry Components" which was attended by 200 participants representing a broad mix of traditional educational publishers, audiovisual producers, computer software publishers, computer retailers, computer hardware manufacturers and educators.[9] Discussion sessions ranged from software publishing ventures to the uses of computers for education purposes. An electronic publishing consultant who reported on the conference noted that "documentation--the book that accompanies the software program--is a very important part of electronic publishing. Software is the exciting wave of the future, but books are the rudder; publishers have an important role in keeping these new products on an even keel." He further reports that the discussion seemed to underscore the fact that "there are no established answers in this young and experimental field."

Richard M. Dougherty, writing about the impact that networking has on library management mentions the managerial implications of computer-produced products, noting that their emergence has already generated a plethora of practical and philosophical issues.[10] Dougherty says, "there is every reason to believe that today's generation of computer-based services is only the harbinger of greater changes to come."

The new technologies which have found their way into libraries are bringing a need for a new kind of planning. The design for a new

library building should be screened much more carefully than in the past. While we cannot accurately predict the exact needs of libraries fifty years hence, we should at least let our imaginations run rampant and be prepared for the worst--or best. In some cases the arrangements in a completed building for electronic and automated devices will not be evident in a casual visit to the building, but in the ceilings, floors and walls will be practical provisions ensconced for future needs, much as one fills a time capsule for opening on a specific date far in the future. Careful planning will assure future information scientists (librarians, if you will) of adequate power distribution (and I emphasize distribution), floor loads, heating, ventilating, air conditioning, air purification, sunlight screening and arrangements for complete flexibility. As the Cohens have said (Elaine and Aaron, in their book, Automation, Space Management, and Productivity), "in a technological age, space management is not an afterthought."

Some will assume that we cannot, today, plan practically and viably fifty years ahead for a technology which is developing as rapidly as are our computers, electronic devices, lasers, satellite transmission and miniaturization. Truly, we cannot be precise in our planning and we will surely err in some ways. At the very least, however, we should, in my opinion, make an effort to provide for growth and inventiveness in these areas the best that we can.

When we have qualms about the so-called "bookless society," we should stop to recall that the codex came into being at the cost of sheepskin scrolls, and they at the cost of clay tablets. We may find it hard to visualize but I would lay a bet, if the fact could be proved, that many an Alexandrian scoffed at the newfound sheepskin scrolls, probably accusing them of being short-lived.

Likewise, I think many a monk accustomed to reading from scrolls held only disdain for cut pages bound into codex form.

The advancement and progress to come belongs to no one in particular; it is mine, it is yours. We can prepare for that future as we desire and I think we have an obligation to think, to ponder, to dream, to visualize, to plan, to hope so that the goal will be defined. This generation of librarians, architects and library building planners can even set the wheels in motion toward the never, never land of what has been unfortunately termed "the bookless society." Most of us think of that term as a defamation but it really is not so. It does not describe a society of low intellect, one which only watches soap operas on a television screen. Because we cut our teeth on books, learned from them, abide by them, swear by them, love them, we cannot tolerate anything called "bookless." I personally doubt that we shall ever be "bookless."

Let us take up the challenge thrust upon us by the new technologies and prepare for that boundless, interesting future of serving up "reading materials" in whatever format to an information-hungry populace. We can plan better buildings and give better service than ever before.

END

BIBLIOGRAPHY

1 CLR Recent Developments, Sept., 1982, p. 3.

2 ARL "5-Year Plan," April 14, 1983, p. 2.

3 Michael Gorman, "Thinking the Unthinkable; a Synergetic Profession." American Libraries, July/August 1982, p. 473.

4 American Society for Information Science. Communicating Information. New York, ASIS, 1980. pp. 13-16.

5 Herbert Poole, Academic Libraries by the Year 2000. New York, Bowker, 1977.

6 Robert Dahlin, "Watch That Book!" Publishers Weekly, March 20, 1981, pp. 24-30.

7 Judith Appelbaum, "Looking at the Problems." Publishers Weekly, March 20, 1981, pp. 26-7.

8 Drexel Library Quarterly, Fall, 1981.

9 Sharmon J. Hilfinger, "Educational Publishers Explore Electronic Future." Publishers Weekly, March 20, 1981, pp. 12-13.

10 Richard M. Dougherty, "The Impact of Networking on Library Management." College and Research Libraries, January, 1973, pp. 15-19.

11 Thomas W. Shaughnessy, "Technology and the Structure of Libraries." Libri, June, 1982, pp. 149-55.

12 S. D. Neill, "The Likely Impact of New Technology on Libraries." Canadian Library Journal, October, 1982, pp. 305-7.